Vet. Surgery (Lameness)
5th year - 2017
Lect. 1

- facts
- Case history

Lameness , Limb conformation and Lameness Diagnosis

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.... BY ....

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Ideal

Cow-hocked

forearm

knee

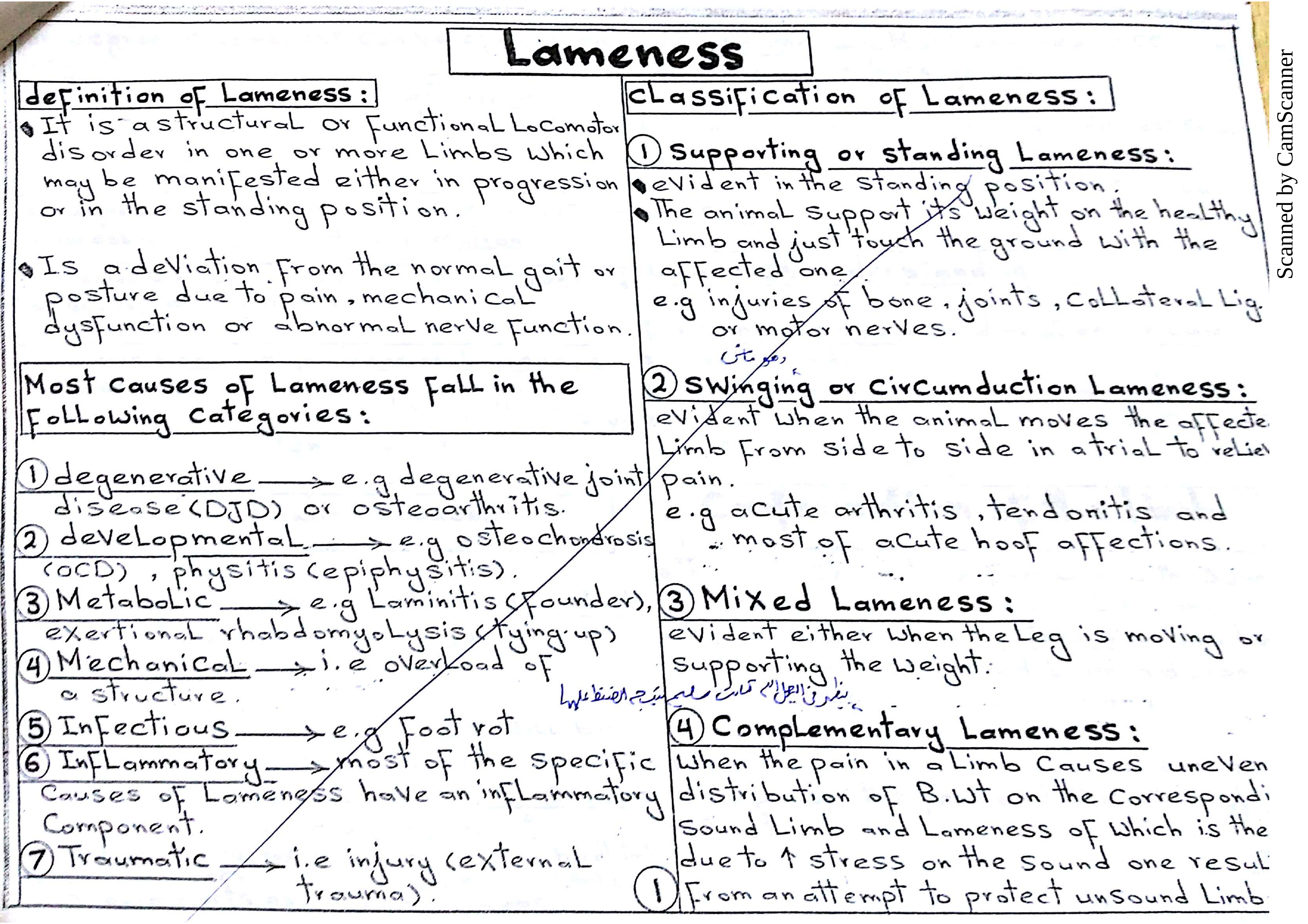
cannon

hoof

elbow

tendon

bulb



Lameness

definition of Lameness:

- It is a structural or functional Locomotor disorder in one or more Limbs which may be manifested either in progression or in the standing position.
- Is a deviation from the normal gait or posture due to pain, mechanical dysfunction or abnormal nerve function.

Most causes of Lameness fall in the following categories:

1. degenerative → e.g degenerative joint disease (DJD) or osteoarthritis.
2. developmental → e.g osteochondrosis (OCD), physitis (epiphysitis).
3. Metabolic → e.g Laminitis (founder), exertional rhabdomyolysis (tying-up)
4. Mechanical → i.e overload of a structure.
5. Infectious → e.g foot rot
6. Inflammatory → most of the specific causes of Lameness have an inflammatory component.
7. Traumatic → i.e injury (external trauma).

Classification of Lameness:

1) Supporting or standing Lameness:

- evident in the standing position.
- The animal support its weight on the healthy Limb and just touch the ground with the affected one.

e.g injuries of bone, joints, collateral Lig. or motor nerves.

2) Swinging or Circumduction Lameness:

evident when the animal moves the affected Limb from side to side in a trial to relieve pain.

e.g acute arthritis, tendonitis and most of acute hoof affections.

3) Mixed Lameness:

evident either when the Leg is moving or supporting the weight.

4) Complementary Lameness:

When the pain in a Limb causes uneven distribution of B.Wt on the corresponding sound Limb and Lameness of which is the due to ↑ stress on the sound one resul...

1) From an attempt to protect unsound Limb

The degree of Lameness Can be classified into :

First degree Lameness	No signs of Lameness at rest, but Lameness appear during motion esp. when the A' bears a Load on its back.
2nd degree Lameness	The signs of Lameness are noticed at rest and during motion.
3rd degree Lameness	• The Lameness is clear at rest and during motion. • obvious Lesion
4th degree Lameness	Non-weight bearing Lameness as in Case of Fractures, disLocation, septic arthritis or septic tenosynovitis.

general Consideration in Cases of Lameness :

(1) Majority of Lameness Found in ForeLimb (60-65%) → about 95% are in the Carpus or beLow.

(2) approximately 3 Lameness will be seen in the ForeLimb to every Lameness in the hindLimb → This is because:

1- ForeLimbs Carry 65% of b.wt.
2- subjected to much ConCussion than hindLimbs
3- ForeLimb receive shock of Landing while the hindLimb acts as propelling Limbs.

(3) In hindLimb → Most Lameness occur in the stifle and hock joints.

(4) In all Cases of Lameness, The foot should be examined as a Common seat of Lameness → The hoof is usually incriminated.

Lameness understanding :

For Complete understanding of equine Lameness:
- understanding of horse anatomy
- understanding of horse intended use.
- understanding of horse Conformation and gait.

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Conformation of the Limb

- The Vet. should be familiar with sound Conformation of the animal's Limb.
- To evaluate Limb Conformation, the horse should be observed from a distance as well as close to hand.

- Limb Conformation also determine the shape of the feet and the wear of the feet.

Faults of Limb Conformation

Faults of Conformation in ForeLimb:

① Base narrow:

The distance between the feet at ground is narrower than between the legs at chest level.

- Horse places more weight on outside of foot causing fetlock and pastern strain.

② Base wide:

The distance between the feet at ground is wider than between the legs at chest.

- Horse places more weight on inside of foot → the inside of the leg is under more strain.

③ Toe in (pigeon toed):

The toes point toward one another when viewed from the front.

④ Toe out (splayed foot):

The toes pointed away from the other toe.

⑤ Base wide toe-in Conformation:

It is an unusual type, causes stress on the medial aspect of the limb.

⑥ Base wide toe-out Conformation:

Cause strain on the medial collateral ligaments of the fetlock and pastern joints.

Faults of Conformation in hindLimb:

① Straight hindLimb:

predispose to:

- Bog spavin →
- upward fixation of the patella.

② standing under behind:

The entire limb is placed too far forward (viewed from the side)

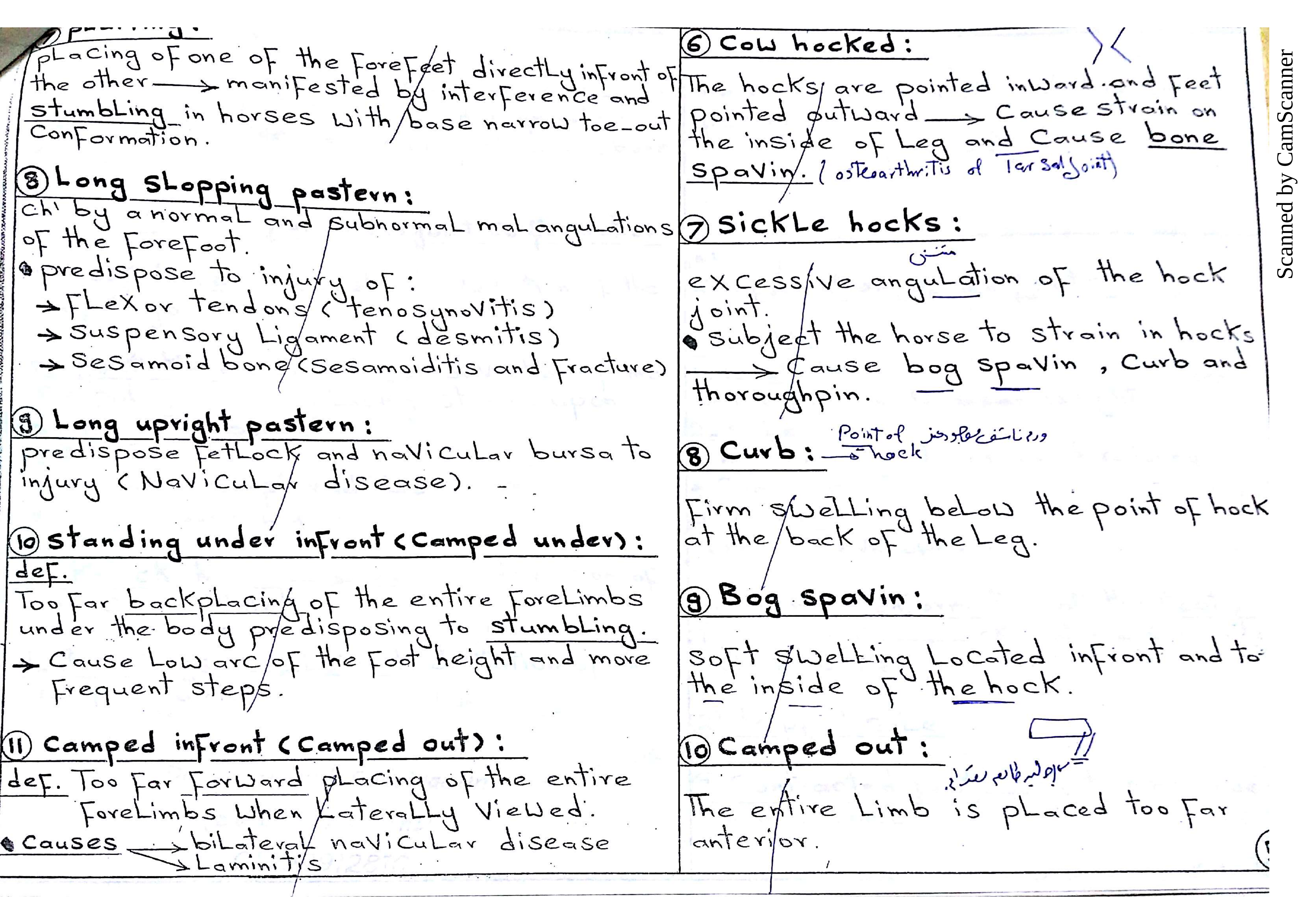
③ Base wide:

The distance between the feet at ground is wider than between the legs at thigh.

④ Base narrow

⑤ Bow Legged:

The hocks rotate outward → horse move stiffly due to inflexible hock action.



(7) plaiting:

placing of one of the forefeet directly infront of the other → manifested by interference and stumbling in horses with base narrow toe-out conformation.

(8) Long slopping pastern:

ch' by a normal and subnormal mal angulations of the forefoot.

- predispose to injury of:
  - → flexor tendons (tenosynovitis)
  - → suspensory ligament (desmitis)
  - → sesamoid bone (sesamoiditis and fracture)

(9) Long upright pastern:

predispose fetlock and navicular bursa to injury (navicular disease).

(10) standing under infront (camped under):

def.

Too far backplacing of the entire forelimbs under the body predisposing to stumbling.

→ cause low arc of the foot height and more frequent steps.

(11) Camped infront (camped out):

def. Too far forward placing of the entire forelimbs when laterally viewed.

- Causes → bilateral navicular disease
  → laminitis

(6) Cow hocked:

The hocks are pointed inward and feet pointed outward → cause strain on the inside of leg and cause bone spavin. (osteoarthritis of tarsal joint)

(7) Sickle hocks:

excessive angulation of the hock joint.

- subject the horse to strain in hocks → cause bog spavin, curb and thoroughpin.

(8) Curb: → point of hock

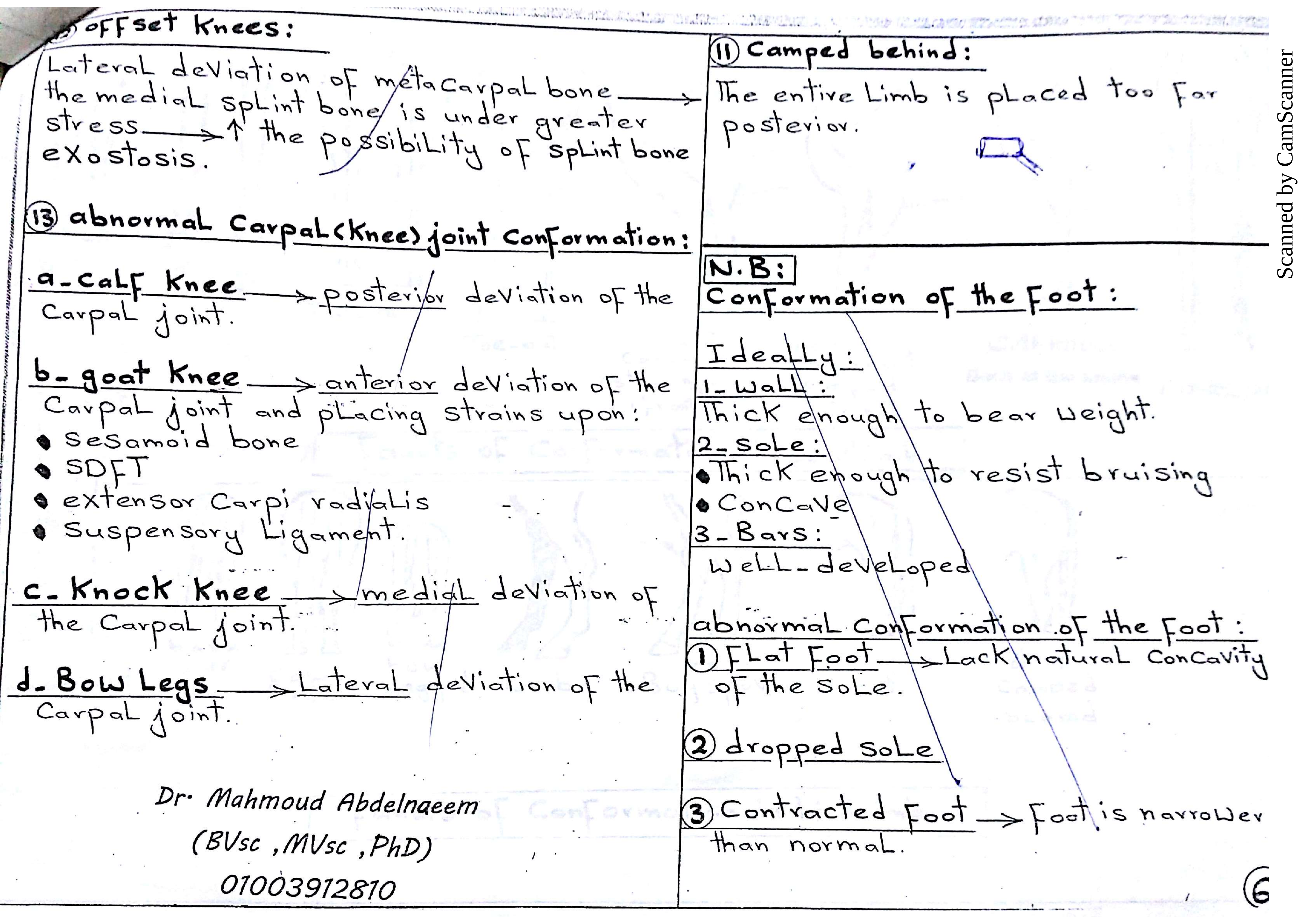
Firm swelling below the point of hock at the back of the leg.

(9) Bog spavin:

soft swelling located infront and to the inside of the hock.

(10) Camped out:

The entire limb is placed too far anterior.



offset Knees:

Lateral deviation of metacarpal bone → the medial splint bone is under greater stress → ↑ the possibility of splint bone exostosis.

(13) abnormal Carpal (Knee) joint Conformation:

a- Calf Knee → posterior deviation of the Carpal joint.

b- goat Knee → anterior deviation of the Carpal joint and placing strains upon:

- Sesamoid bone
- SDFT
- extensor Carpi radialis
- Suspensory Ligament.

c- Knock Knee → medial deviation of the Carpal joint.

d- Bow Legs → Lateral deviation of the Carpal joint.

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(11) Camped behind:

The entire Limb is placed too far posterior.

N.B:

Conformation of the Foot:

Ideally:

1- Wall:
Thick enough to bear weight.

2- Sole:
- Thick enough to resist bruising
- Concave

3- Bars:
well-developed

abnormal Conformation of the Foot:

(1) Flat Foot → Lack natural Concavity of the Sole.

(2) dropped Sole

(3) Contracted Foot → Foot is narrower than normal.

10- Has the horse received any medication in the last day or two?
11- Has the horse been treated for lameness before and why?
12- dose the horse has any stable vices?
13- How long have you had the horse?
14- Who was the last vet. that treated the horse?
15- does the horse have shoes on all four feet and when was he last shoed?
16- does the lameness improve or worsen with exercise? (shoulder rhumatism) cold lameness / worm lameness
17- What has been done in the form of exercise or turnout since the lameness was noted?

② palpation :

- Systematic palpation → start at the bottom and complete examination of the entire limb.
- Feel for heat, swelling, pain and changes in tone or texture of a tissue.
- characterize any swellings as hard, firm, soft, fluid-filled.

a- Forelimbs:

1- Bottom of foot
2- Hoof wall
3- Coronary bands
4- Lateral cartilage
5- pastern area
6- Fetlock joint
7- Cannon bone area
8- Suspensory ligaments.
9- Inferior check ligament
10- Flexor tendons
11- Carpus
12- soft tissues between the carpus and elb
13- Forearm and shoulders.

b- Hindlimbs:

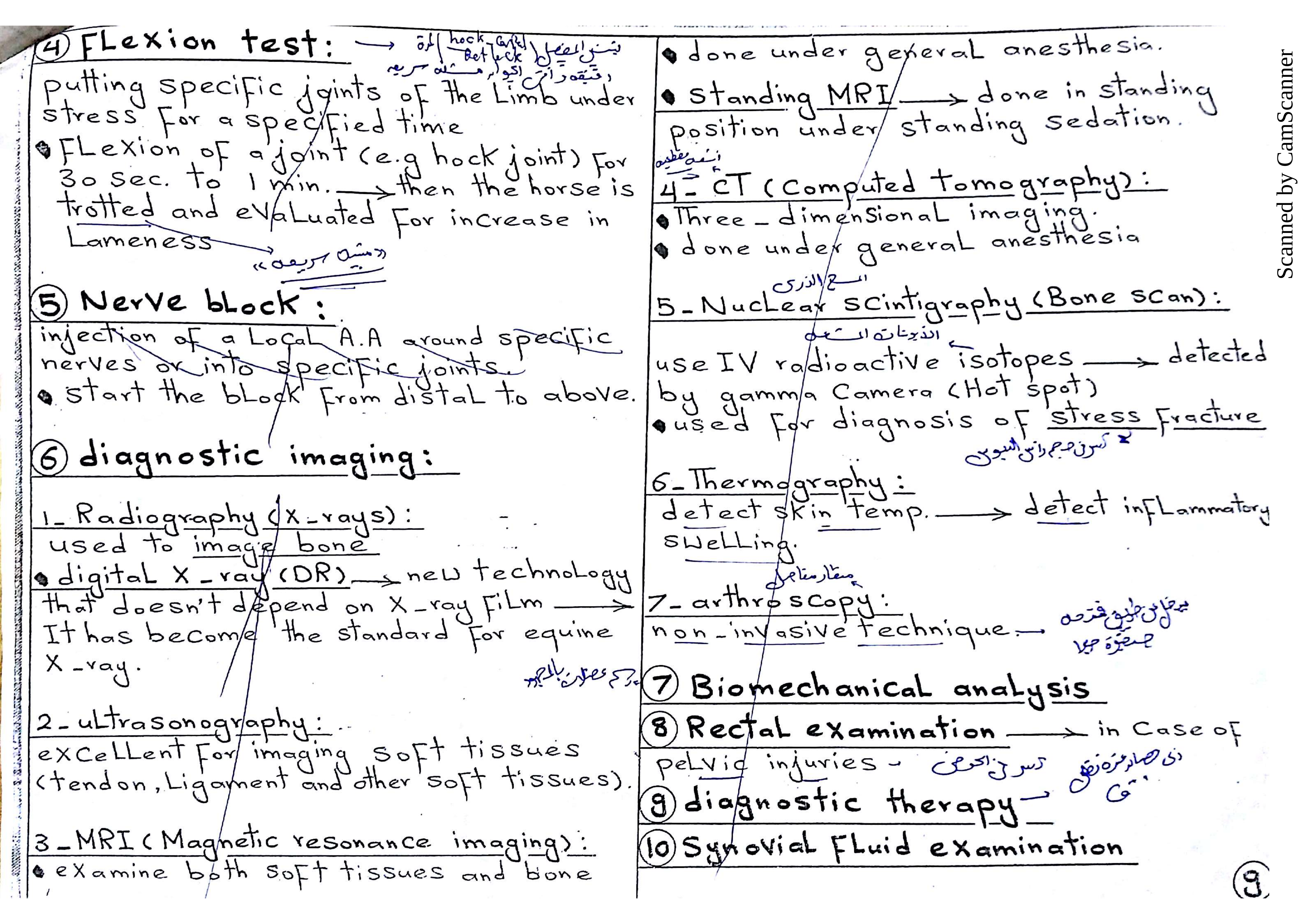
1- Hock joint
2- stifle joint
3- all soft tissues over the stifle joint
4- Hip joint
5- pelvis. by rectal palpation.

③ Compression :

Hoof testers (Hoof pincers): allow pressure to be placed upon spec regions of the foot in search of a pai response.

e.g
- picked up nail
- Navicular syndrome

Hoof roll



4) Flexion test: →

putting specific joints of the Limb under stress for a specified time

- Flexion of a joint (e.g hock joint) for 30 sec. to 1 min. → then the horse is trotted and evaluated for increase in Lameness

5) Nerve block:

injection of a Local A.A around specific nerves or into specific joints.

- start the block from distal to above.

6) diagnostic imaging:

1- Radiography (X-rays):

used to image bone

- digital X-ray (DR) → new technology that doesn't depend on X-ray film → It has become the standard for equine X-ray.

2- ultrasonography:

excellent for imaging soft tissues (tendon, Ligament and other soft tissues).

3- MRI (Magnetic resonance imaging):

- examine both soft tissues and bone
- done under general anesthesia.
- Standing MRI → done in standing position under standing sedation.

4- CT (Computed Tomography):

- Three-dimensional imaging.
- done under general anesthesia

5- Nuclear scintigraphy (Bone scan):

use IV radioactive isotopes → detected by gamma Camera (Hot spot)

- used for diagnosis of stress fracture

6- Thermography:

detect skin temp. → detect inflammatory swelling.

7- arthroscopy:

non-invasive technique. →

7) Biomechanical analysis

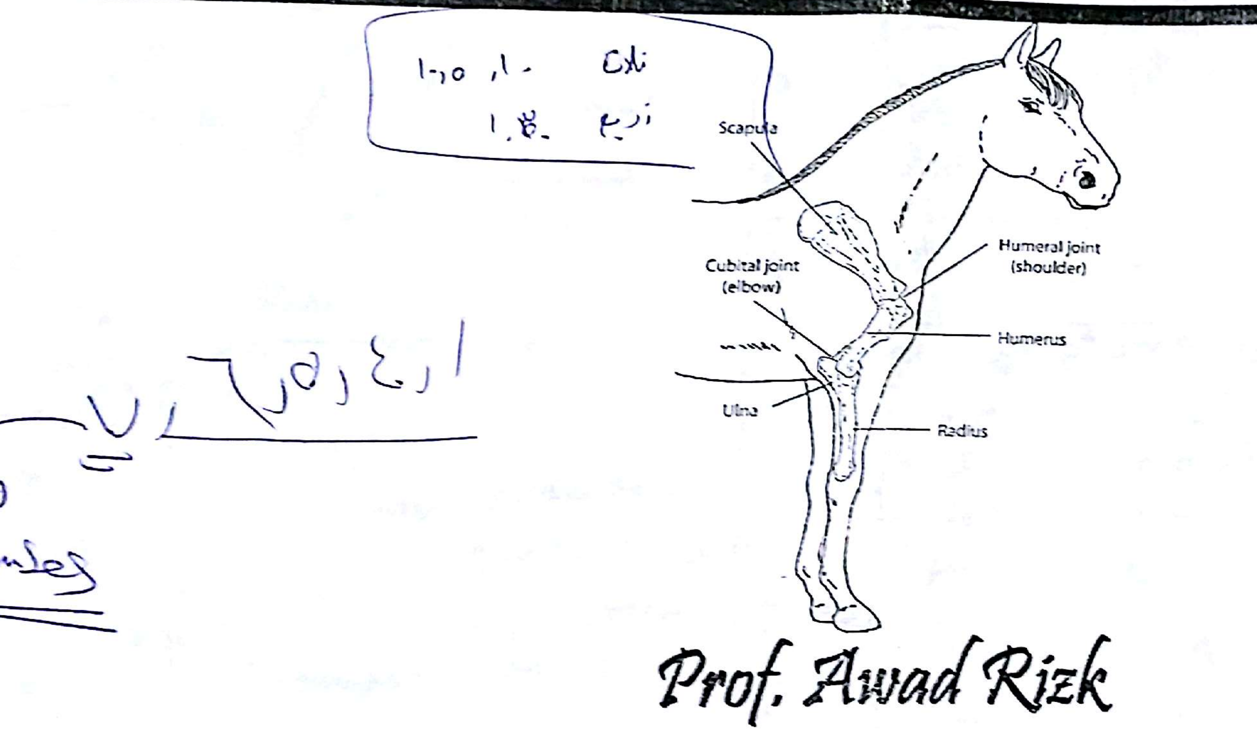
8) Rectal examination → in case of pelvic injuries -

9) diagnostic therapy →

10) Synovial Fluid examination

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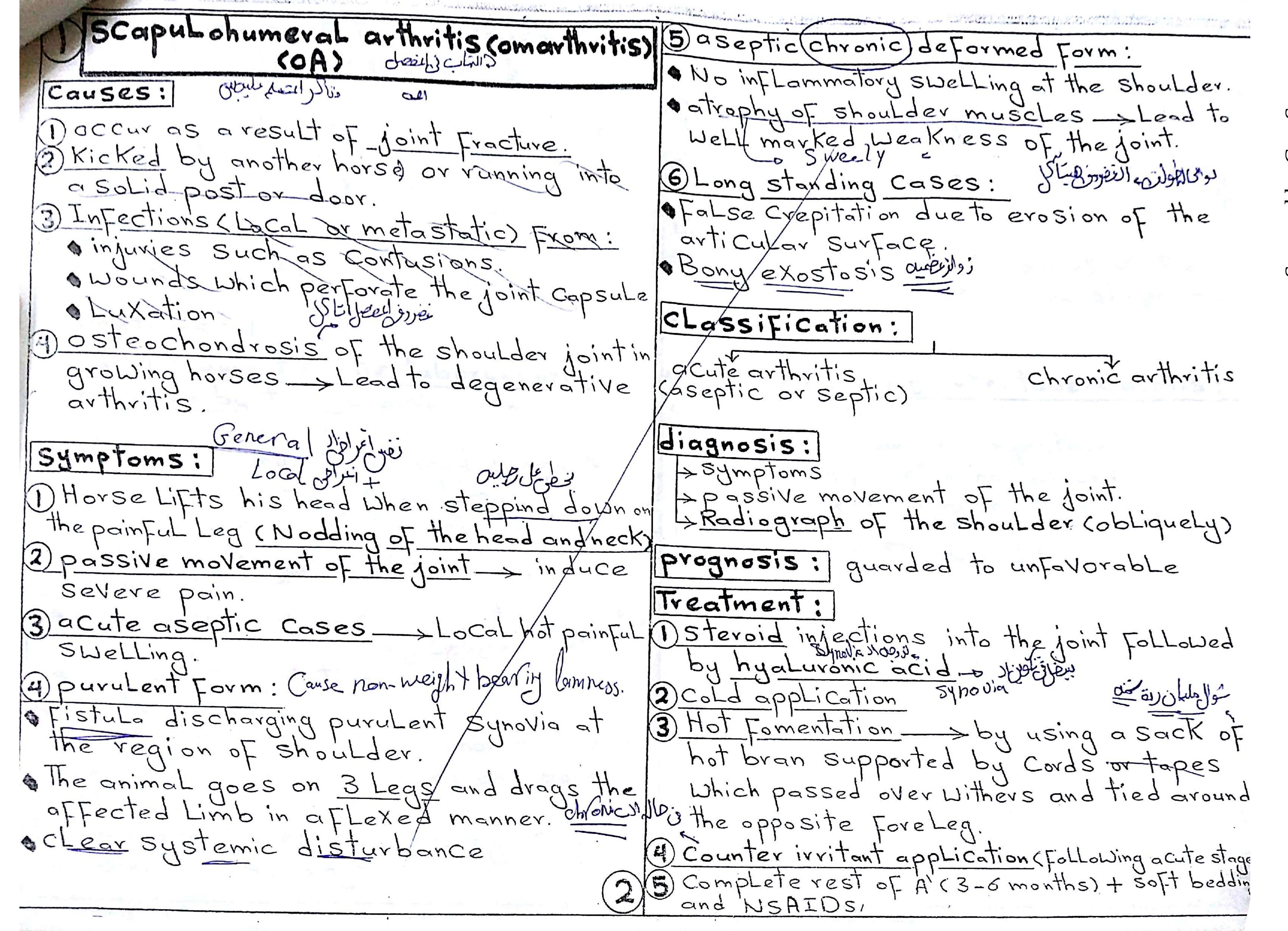
Affections of the Shoulder Joint
(Shoulder Lameness)



Causes

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1) Scapulohumeral arthritis (omarthritis) (OA)

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Causes:

1. occur as a result of joint fracture.
2. Kicked by another horse or running into a solid post or door.
3. Infections (Local or metastatic) From:
   - injuries such as Contusions.
   - wounds which perforate the joint Capsule
   - Luxation
4. osteochondrosis of the shoulder joint in growing horses → Lead to degenerative arthritis.

Symptoms:

General + Local

1. Horse Lifts his head when stepping down on the painful Leg (Nodding of the head and neck)
2. passive movement of the joint → induce severe pain.
3. acute aseptic cases → Local hot painful swelling.
4. purulent form: Cause non-weight bearing lameness.
   - Fistula discharging purulent synovia at the region of shoulder.
   - The animal goes on 3 Legs and drags the affected Limb in a flexed manner.
   - clear systemic disturbance

5. aseptic chronic deformed form:
   - No inflammatory swelling at the shoulder.
   - atrophy of shoulder muscles → Lead to well marked weakness of the joint. (Sweeny)
6. Long standing cases:
   - False Crepitation due to erosion of the articular surface.
   - Bony exostosis

Classification:

- acute arthritis (aseptic or septic)
- chronic arthritis

diagnosis:

- → symptoms
- → passive movement of the joint.
- → Radiograph of the shoulder (obliquely)

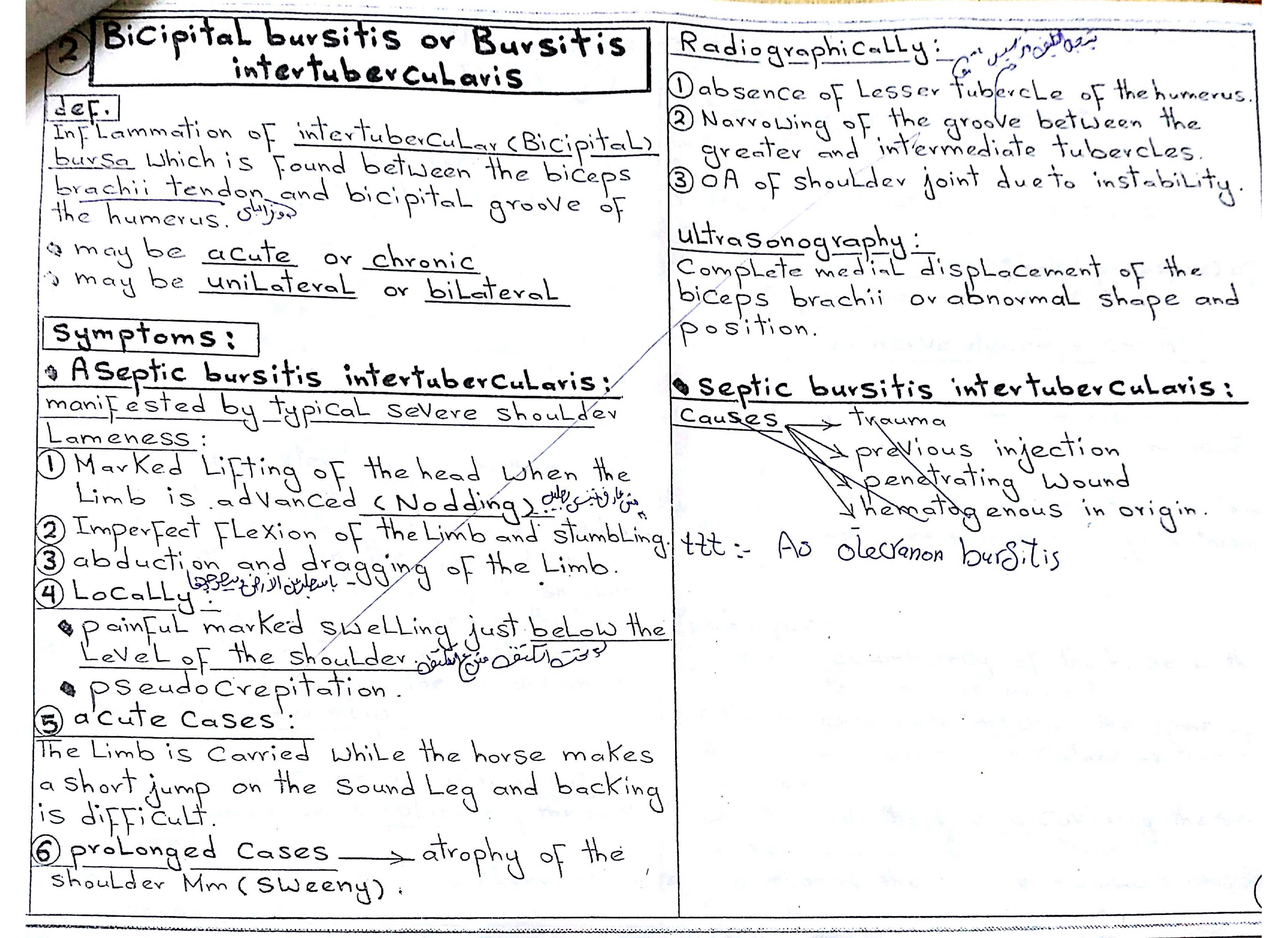
prognosis:

guarded to unfavorable

Treatment:

1. Steroid injections into the joint followed by hyaluronic acid → synovia
2. Cold application
3. Hot fomentation → by using a sack of hot bran supported by cords ~~or tapes~~ which passed over withers and tied around the opposite foreleg.
4. Counter irritant application (following acute stage)
5. Complete rest of A' (3-6 months) + soft bedding and NSAIDs.

2



(2) Bicipital bursitis or Bursitis intertubercularis

def.
Inflammation of intertubercular (Bicipital) bursa which is found between the biceps brachii tendon and bicipital groove of the humerus.

- may be acute or chronic
- may be unilateral or bilateral

Symptoms:

• Aseptic bursitis intertubercularis:

manifested by typical severe shoulder Lameness:

1. Marked Lifting of the head when the Limb is advanced (Nodding).
2. Imperfect flexion of the Limb and stumbling.
3. abduction and dragging of the Limb.
4. Locally:
   - painful marked swelling just below the Level of the shoulder.
   - pseudocrepitation.
5. acute cases:
   The Limb is carried while the horse makes a short jump on the sound Leg and backing is difficult.
6. proLonged cases ⟶ atrophy of the shoulder Mm (Sweeny).

Radiographically:

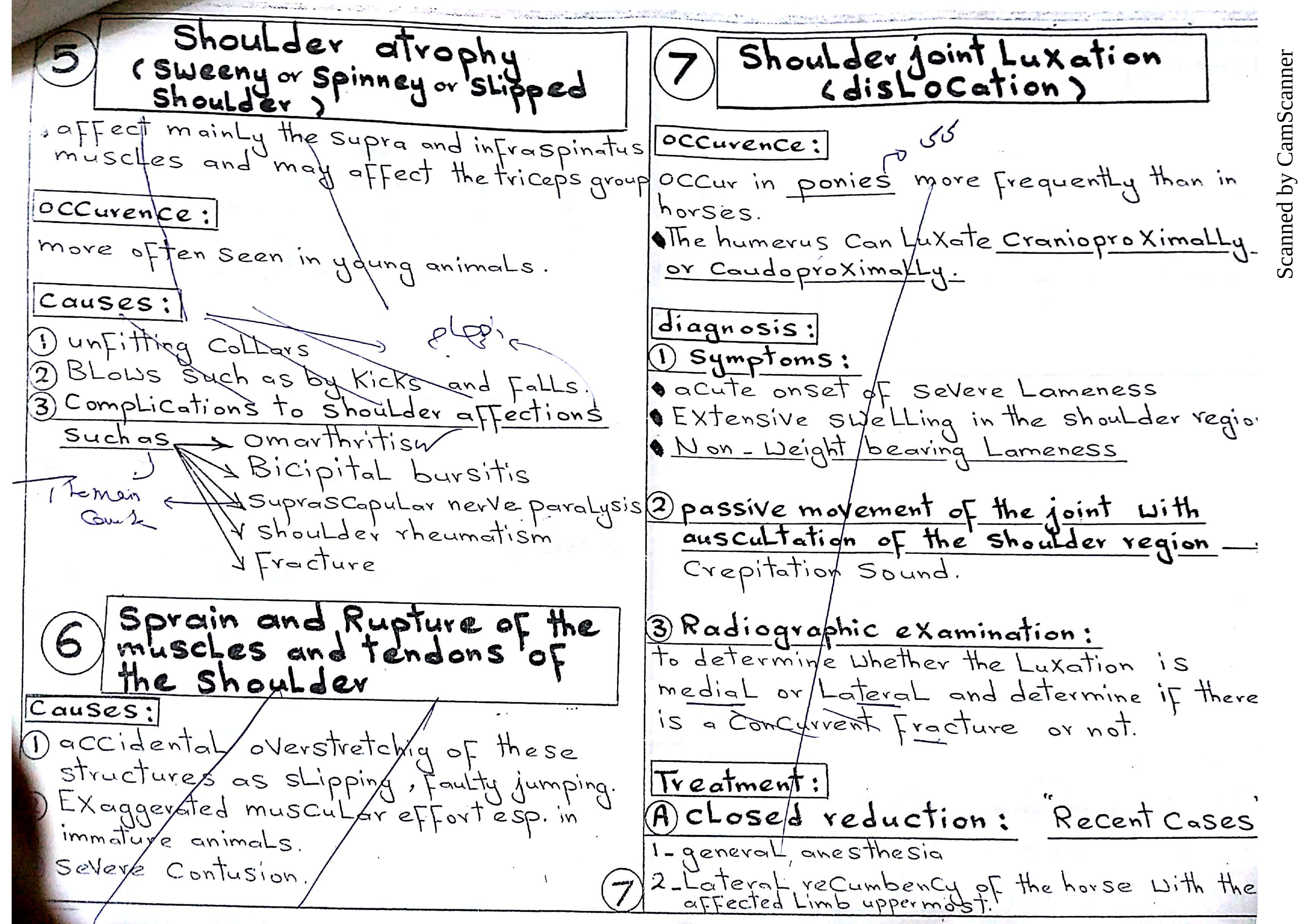
1. absence of Lesser tubercle of the humerus.
2. Narrowing of the groove between the greater and intermediate tubercles.
3. OA of shoulder joint due to instability.

ultrasonography:
Complete medial displacement of the biceps brachii or abnormal shape and position.

• Septic bursitis intertubercularis:

Causes ⟶
- trauma
- previous injection
- penetrating wound
- hematogenous in origin.

ttt :- As olecranon bursitis



5 Shoulder atrophy (Sweeny or Spinney or Slipped Shoulder)

- affect mainly the supra and infraspinatus muscles and may affect the triceps group

occurence:

more often seen in young animals.

Causes:

1. unfitting Collars
2. Blows such as by kicks and falls.
3. Complications to shoulder affections

such as →
- omarthritis
- Bicipital bursitis
- Suprascapular nerve paralysis (The main cause)
- shoulder rheumatism
- Fracture

6 Sprain and Rupture of the muscles and tendons of the shoulder

Causes:

1. accidental overstretching of these structures as slipping, faulty jumping.
2. Exaggerated muscular effort esp. in immature animals.
3. Severe Contusion.

7 Shoulder joint Luxation (dislocation)

occurence:

occur in ponies more frequently than in horses.

- The humerus can luxate Cranioproximally or Caudoproximally.

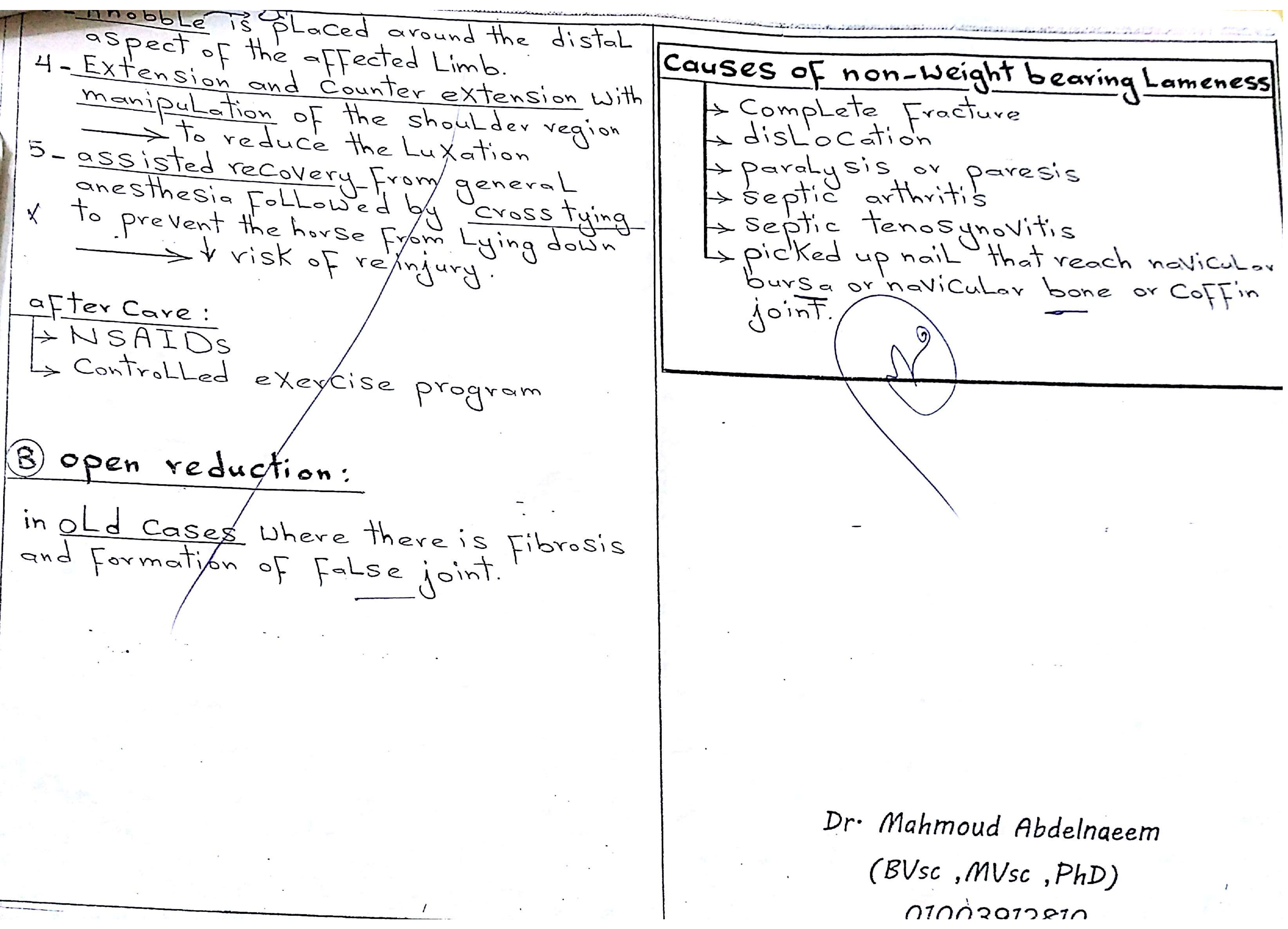
diagnosis:

1. **Symptoms:**
   - acute onset of severe Lameness
   - Extensive swelling in the shoulder region
   - Non-weight bearing Lameness
2. **passive movement of the joint with auscultation of the shoulder region** — Crepitation sound.
3. **Radiographic examination:** to determine whether the Luxation is medial or lateral and determine if there is a concurrent fracture or not.

Treatment:

(A) closed reduction: "Recent Cases"

1- general anesthesia
2- Lateral recumbency of the horse with the affected limb uppermost.



- Knobble is placed around the distal aspect of the affected limb.

4- Extension and counter extension with manipulation of the shoulder region → to reduce the luxation

5- assisted recovery from general anesthesia followed by cross tying to prevent the horse from lying down → ↓ risk of re-injury.

after care:
- → NSAIDs
- → Controlled exercise program

Ⓑ open reduction:

in old cases where there is fibrosis and formation of false joint.

Causes of non-weight bearing lameness

- → Complete fracture
- → dislocation
- → paralysis or paresis
- → septic arthritis
- → septic tenosynovitis
- → picked up nail that reach navicular bursa or navicular bone or coffin joint.

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Affections of the Elbow and Forearm

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Fracture of the Radius

Etiology:

heavy blows such as kicks, collision with trees, or fall

Symptoms:

1- Marked swelling
2- Crepitation may not be detected.
3- Non-weight bearing lameness.

Prognosis:

Grave condition in adult animals

Treatment:

1) Simple transverse diaphyseal fracture (non displaced - non overlaping) of the radius in young colt → external fixation by splints and cast.

2) Compound fracture in valuable animal → Internal fixation by DCP applied on the craniolateral and craniomedial aspects of the radius → then sling the animal.

3) Large cattle and buffalo → slaughter

IV Fracture of the ulna

Symptoms:

1) Non displaced fracture → lameness
2) displaced fracture → dropped elbow appearance

Treatment:

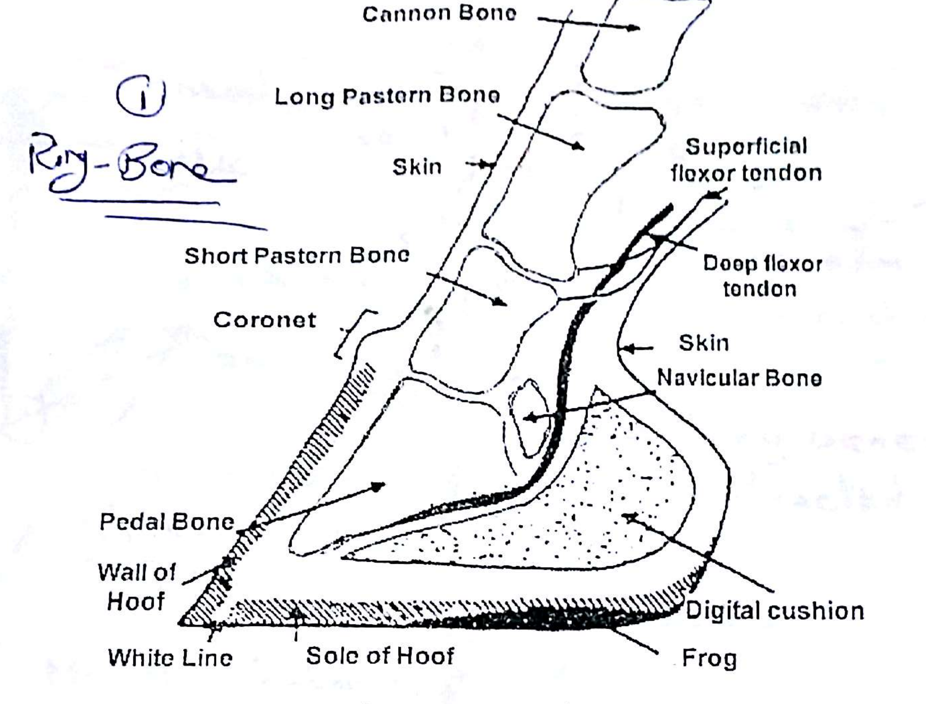
1) Non surgical management:

for non displaced, non articular fracture of the olecranon
1- strict stall confinement
2- full limb splint (PVC pipe) on the caudal aspect of the limb

2) Surgical management:

open reduction and internal fixation by bone plate or cerclage wire

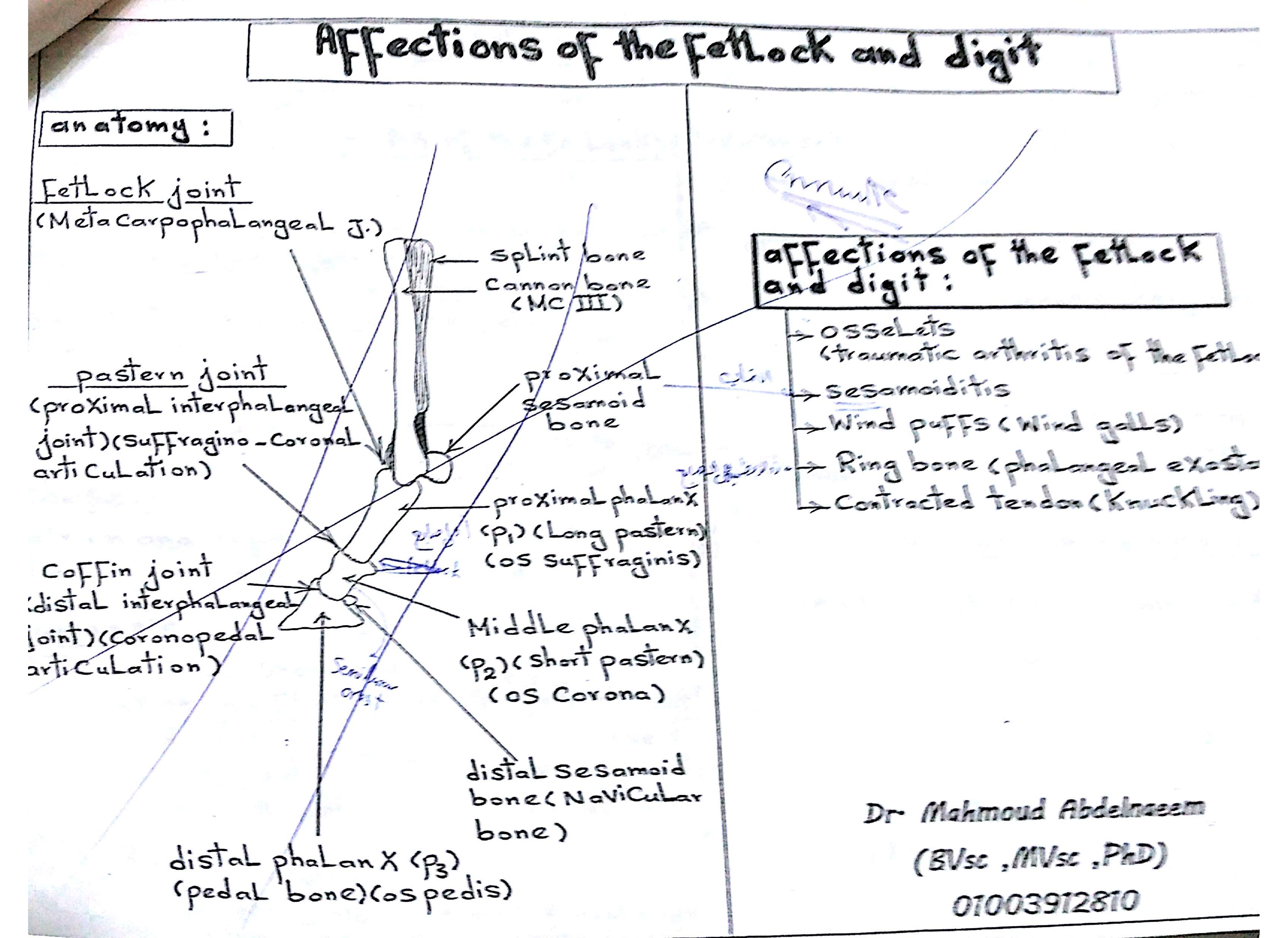
Affections of the Fetlock and Digit



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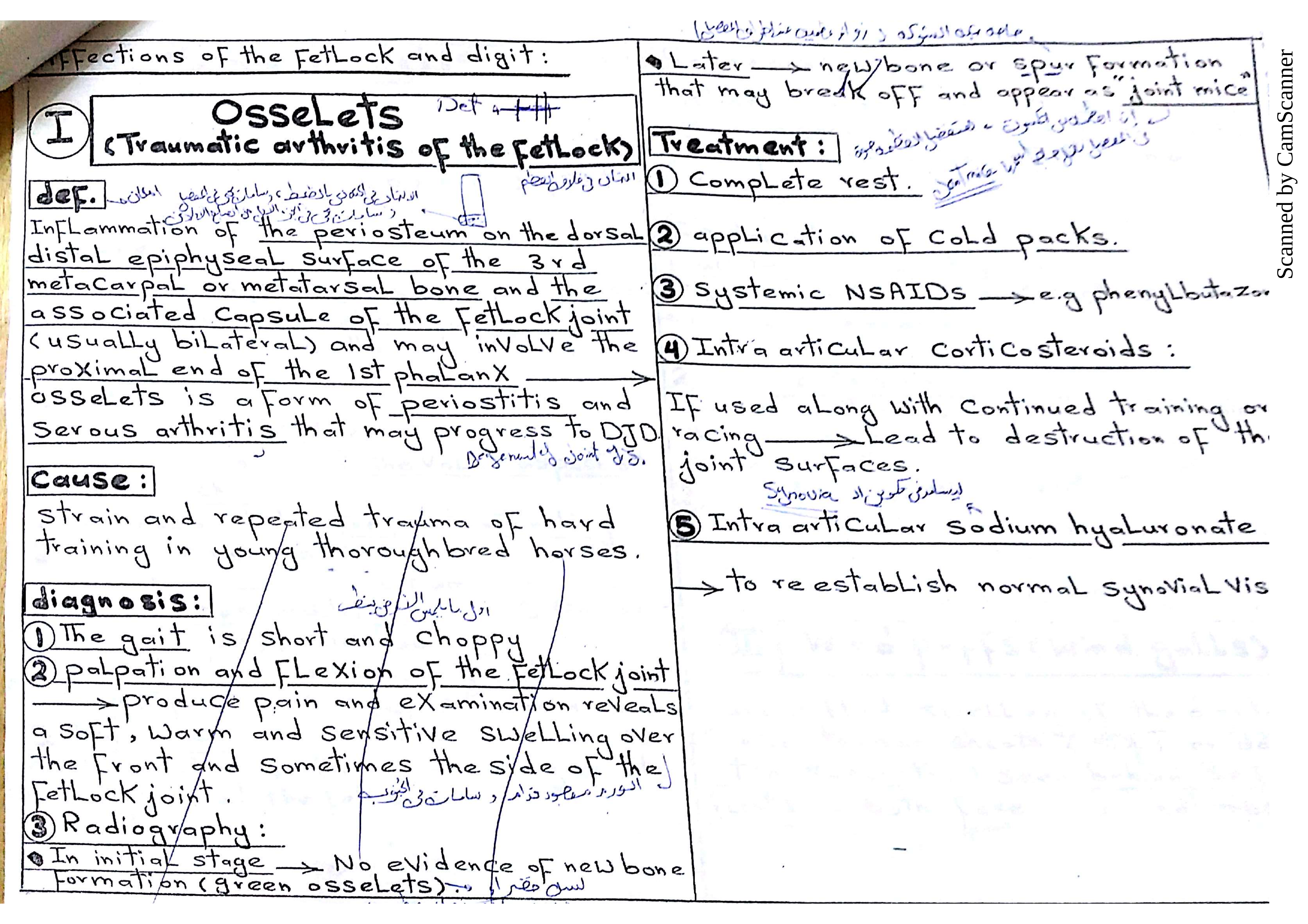
Affections of the fetlock and digit



affections of the fetlock and digit :

- osselets (traumatic arthritis of the fetl...
- sesamoiditis
- Wind puffs (Wind galls)
- Ring bone (phalangeal exost...
- Contracted tendon (Knuckling)

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Affections of the FetLock and digit:

I OsseLets (Traumatic arthritis of the FetLock)

Def 4

def. Inflammation of the periosteum on the dorsal distal epiphyseal surface of the 3rd metacarpal or metatarsal bone and the associated capsule of the fetlock joint (usually bilateral) and may involve the proximal end of the 1st phalanx → osselets is a form of periostitis and serous arthritis that may progress to DJD. (Degenerative joint D.)

Cause:

strain and repeated trauma of hard training in young thoroughbred horses.

diagnosis:

1. The gait is short and choppy
2. palpation and flexion of the fetlock joint → produce pain and examination reveals a soft, warm and sensitive swelling over the front and sometimes the side of the fetlock joint.
3. Radiography:

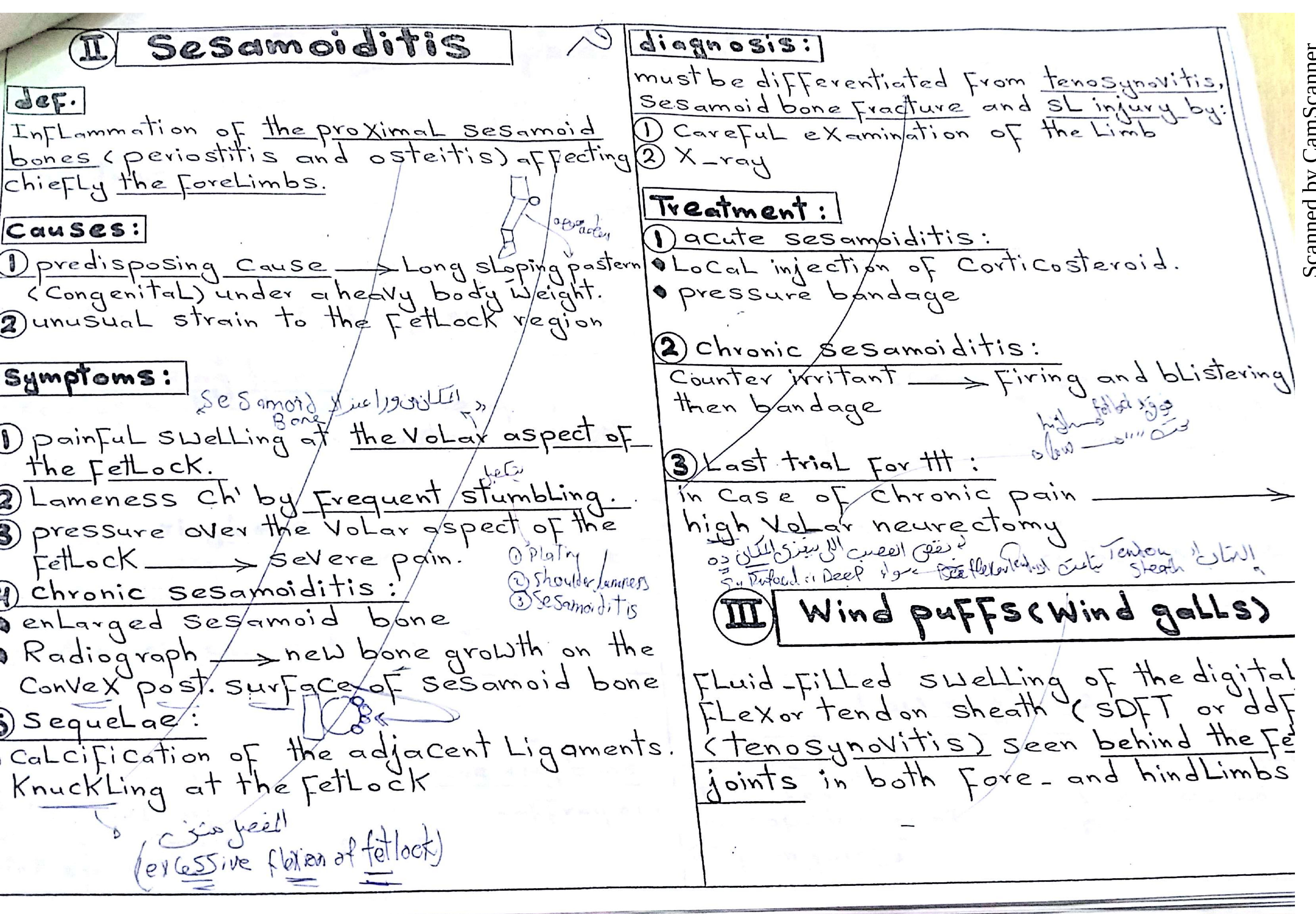
- In initial stage → No evidence of new bone formation (green osselets).
- Later → new bone or spur formation that may break off and appear as "joint mice"

Treatment:

1. Complete rest.
2. application of cold packs.
3. Systemic NSAIDs → e.g phenylbutazone
4. Intra articular corticosteroids:

If used along with continued training or racing → Lead to destruction of the joint surfaces.

5. Intra articular sodium hyaluronate → to re establish normal synovial vis



II Sesamoiditis

def.

Inflammation of the proximal sesamoid bones (periostitis and osteitis) affecting chiefly the forelimbs.

Causes:

1. predisposing cause → Long sloping pastern (congenital) under a heavy body weight.
2. unusual strain to the fetlock region

Symptoms:

1. painful swelling at the volar aspect of the fetlock. (sesamoid bone)
2. Lameness ch' by frequent stumbling.
3. pressure over the volar aspect of the fetlock → severe pain.
4. chronic sesamoiditis:
   - enlarged sesamoid bone
   - Radiograph → new bone growth on the convex post. surface of sesamoid bone
5. sequelae:
   - calcification of the adjacent ligaments.
   - Knuckling at the fetlock (excessive flexion of fetlock)

① plating ② shoulder lameness ③ sesamoiditis

diagnosis:

must be differentiated from tenosynovitis, sesamoid bone fracture and SL injury by:

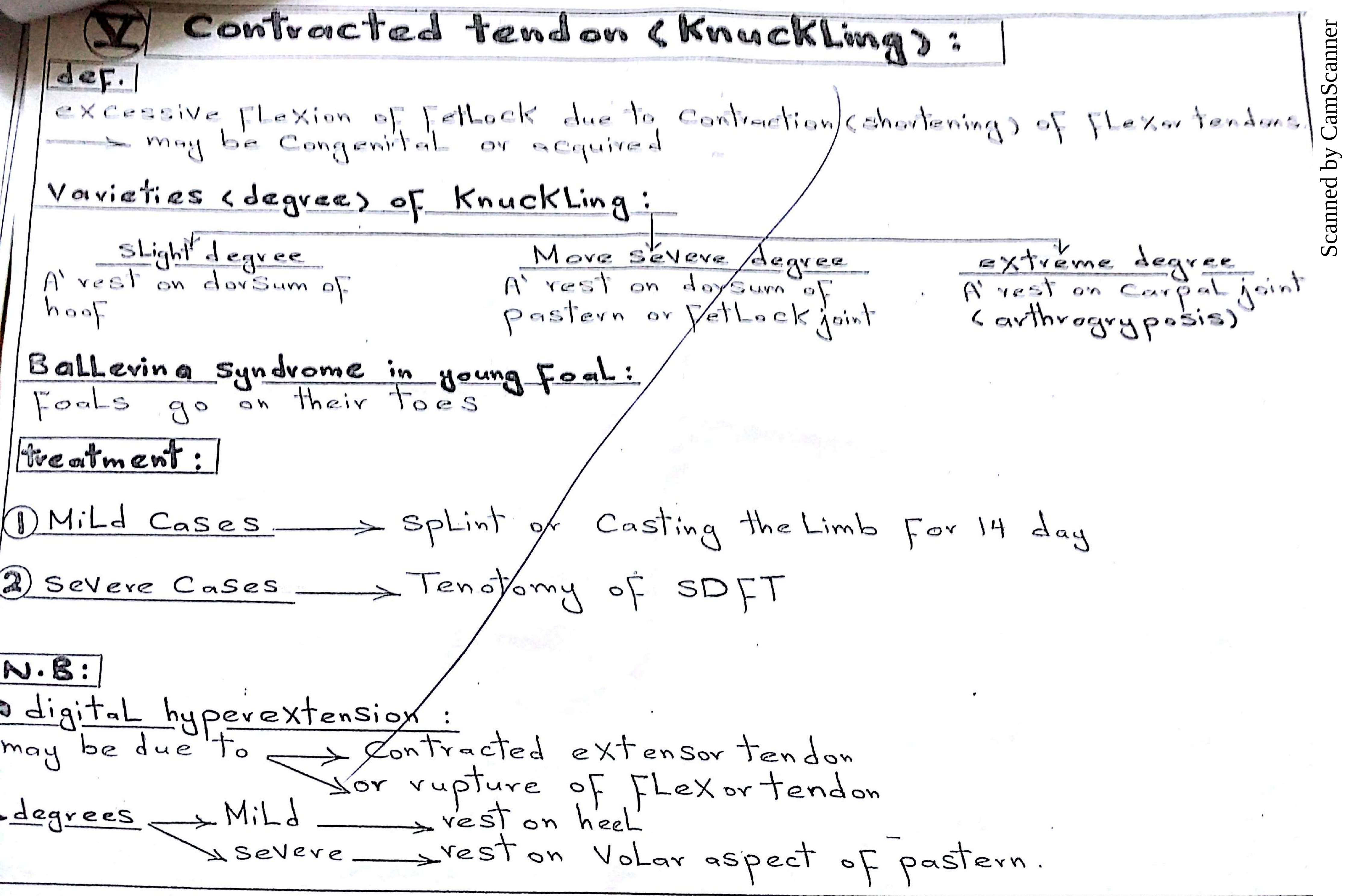
1. Careful examination of the limb
2. X-ray

Treatment:

1. acute sesamoiditis:
   - Local injection of corticosteroid.
   - pressure bandage
2. chronic sesamoiditis:
   Counter irritant → firing and blistering then bandage
3. Last trial for ttt:
   in case of chronic pain → high volar neurectomy

III Wind puffs (Wind galls)

Fluid-filled swelling of the digital flexor tendon sheath (SDFT or DDF) (tenosynovitis) seen behind the fetlock joints in both fore- and hindlimbs



(V) Contracted tendon (Knuckling):

def.

excessive flexion of fetlock due to contraction (shortening) of flexor tendons.
→ may be congenital or acquired

Varieties (degree) of Knuckling:

Slight degree	More severe degree	extreme degree
A' rest on dorsum of hoof	A' rest on dorsum of pastern or fetlock joint	A' rest on carpal joint (arthrogryposis)

Ballerina syndrome in young foal:
Foals go on their toes

treatment:

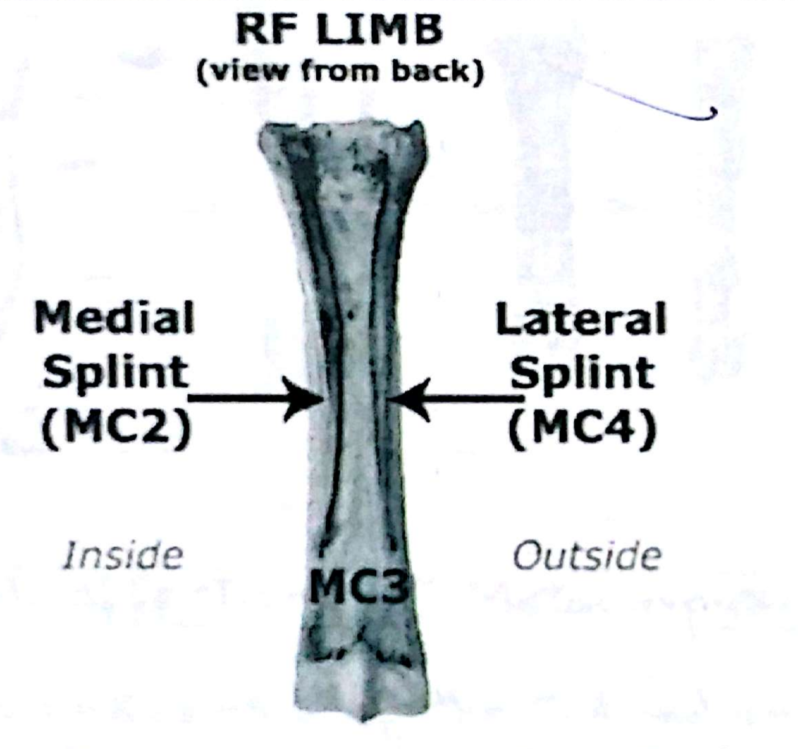
1. Mild cases → Splint or casting the limb for 14 day
2. Severe cases → Tenotomy of SDFT

N.B:

- digital hyperextension:
  may be due to → contracted extensor tendon
  → or rupture of flexor tendon
- degrees → Mild → rest on heel
  → severe → rest on volar aspect of pastern.

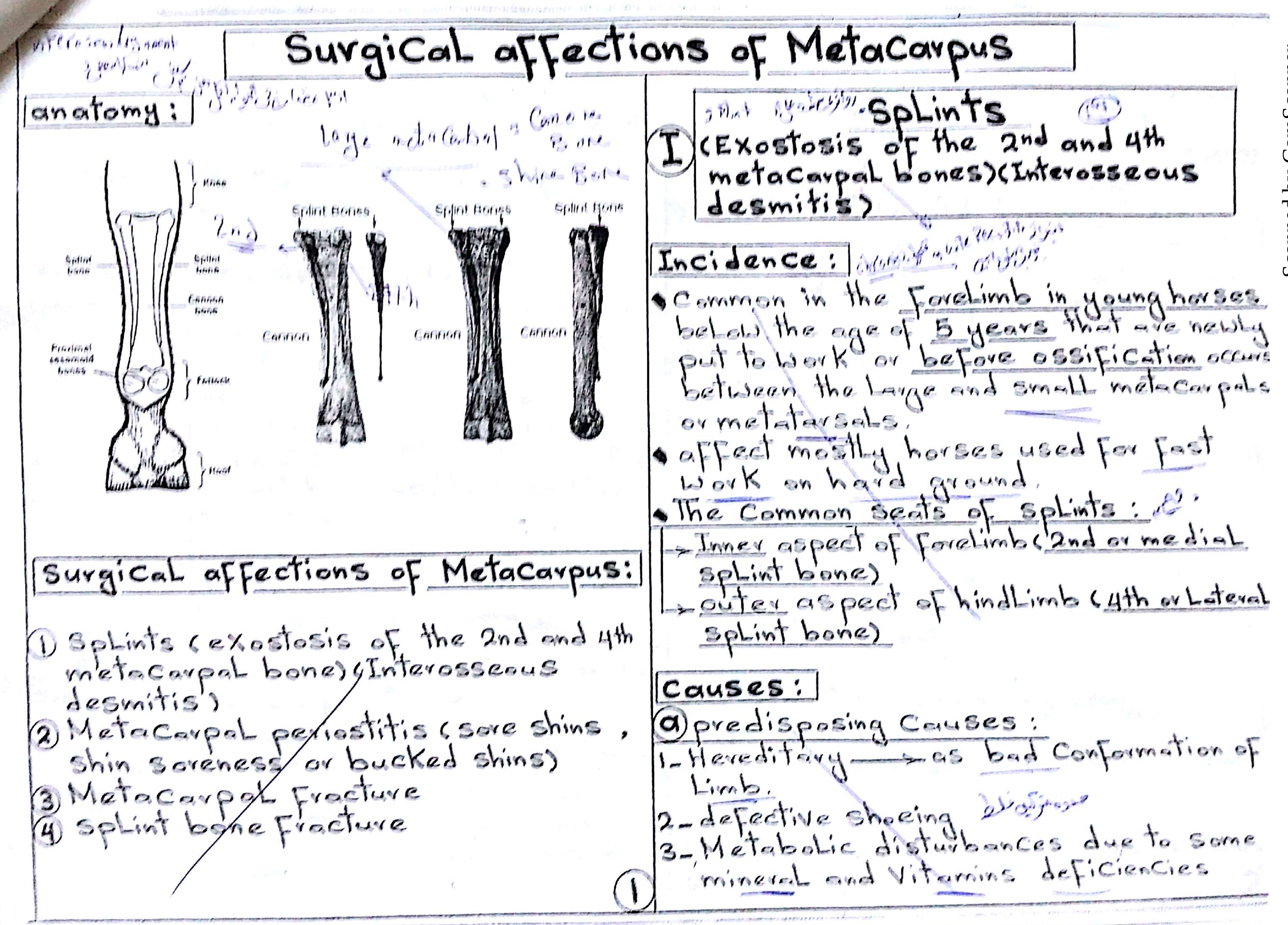
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Affections of the Metacarpus




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Surgical affections of Metacarpus

anatomy:

Surgical affections of Metacarpus:

1. Splints (exostosis of the 2nd and 4th metacarpal bone) (Interosseous desmitis)
2. Metacarpal periostitis (sore shins, shin soreness or bucked shins)
3. Metacarpal Fracture
4. Splint bone Fracture

I Splints (Exostosis of the 2nd and 4th metacarpal bones) (Interosseous desmitis)

Incidence:

- Common in the Forelimb in young horses below the age of 5 years that are newly put to work or before ossification occurs between the large and small metacarpals or metatarsals.
- affect mostly horses used for fast work on hard ground.
- The Common Seats of splints:
  - → Inner aspect of Forelimb (2nd or medial splint bone)
  - → outer aspect of hindlimb (4th or Lateral splint bone)

Causes:

a) predisposing Causes:

1. Hereditary → as bad Conformation of Limb.
2. defective shoeing
3. Metabolic disturbances due to some mineral and Vitamins deficiencies

(b) Exciting Cause: → Trauma

1- overstretching and sprain of the interosseous Ligament → Localized periostitis
2- sprain of the suspensory Lig. → Localized osteoperiostitis

Varieties of splints: امتحان

simple splint	single exostosis on the splint bone
chain splint	several small exostosis arranged in a row along the splint bone
Knee splint	a splint on the upper third of the splint bone approaching the Knee joint.
Rod (peg) splint	Exostosis on the posterior aspect of Cannon bone between that bone and suspensory Ligament.
Jack (Bump) splint	a Very Large exostosis on the metacarpal bone.
Spongy splint	a ~~more or less~~ uniform thickening of the splint bone → usually due to some metabolic diseases

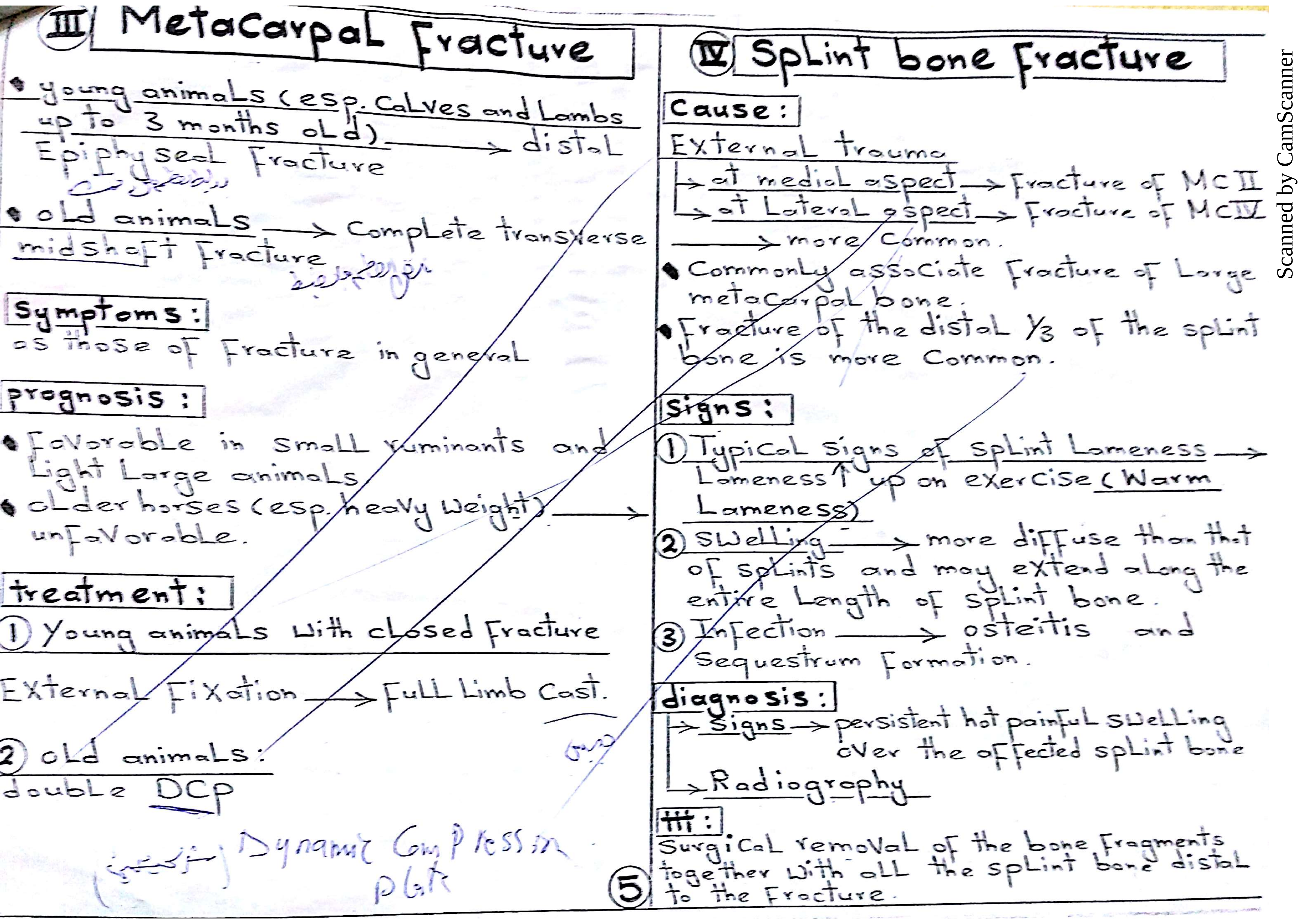
Clinical signs:

1. Lameness may be sudden in onset and tends to deteriorate with work and be worst on hard ground (Warm Lameness).
2. obvious palpable swelling → a bony exostosis surrounded by an edematous soft tissue reaction → Localized heat and pain on Firm palpation.

diagnosis:

1. Radiography: useful to document the size and activity of the exostosis
2. Nerve block: To determine if the exostosis is the primary cause of pain resulting in Lameness or not.
3. Diagnostic ultrasonography: to determine if SL is affected or not.
4. MRI: to determine if there is adhesion between SL and splint bone.

2



III Metacarpal Fracture

- young animals (esp. Calves and Lambs up to 3 months old) → distal Epiphyseal Fracture
- old animals → Complete transverse midshaft Fracture

Symptoms:

as those of Fracture in general

prognosis:

- Favorable in small ruminants and Light Large animals
- older horses (esp. heavy weight) → unfavorable.

treatment:

1. Young animals with closed Fracture

External Fixation → Full Limb Cast.

2. old animals:

double DCP

(Dynamic Compression plate)

IV Splint bone Fracture

Cause:

External trauma
- → at medial aspect → Fracture of MC II
- → at Lateral aspect → Fracture of MC IV → more Common.

- Commonly associate Fracture of Large metacarpal bone.
- Fracture of the distal 1/3 of the splint bone is more Common.

Signs:

1. Typical signs of splint Lameness → Lameness ↑ up on exercise (Warm Lameness)
2. Swelling → more diffuse than that of splints and may extend along the entire Length of splint bone.
3. Infection → osteitis and Sequestrum Formation.

diagnosis:

- → Signs → persistent hot painful swelling over the affected splint bone
- → Radiography

ttt:

Surgical removal of the bone Fragments together with all the splint bone distal to the Fracture.

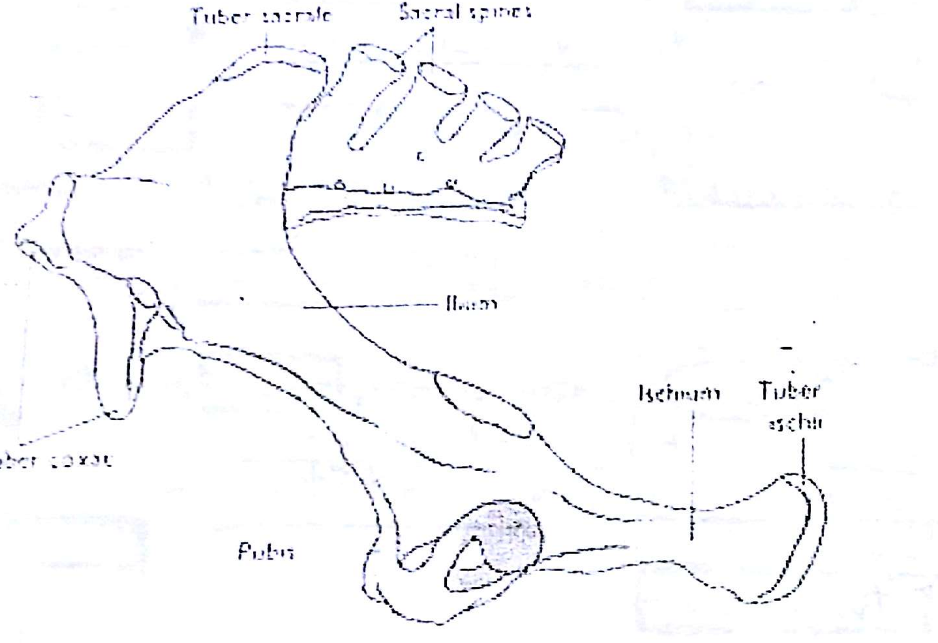
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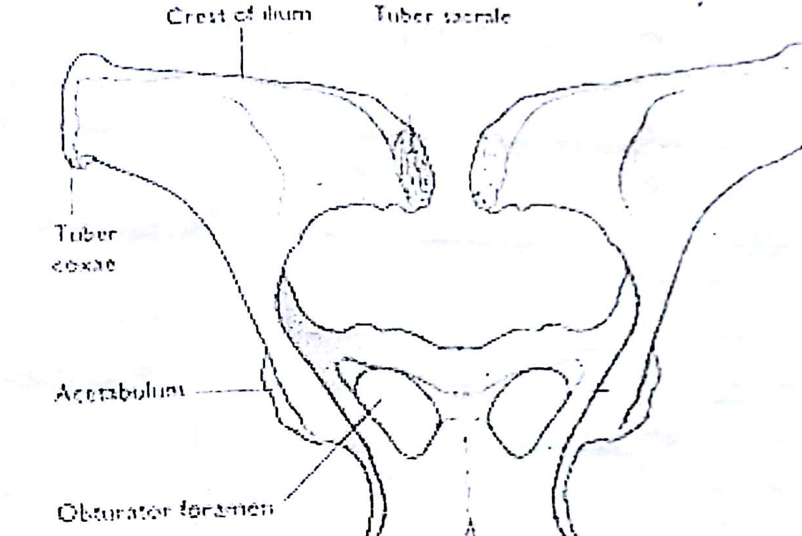
Vet. Surgery

Fifth Year - 2017

Lec. 4

Pelvic and Hip Affections



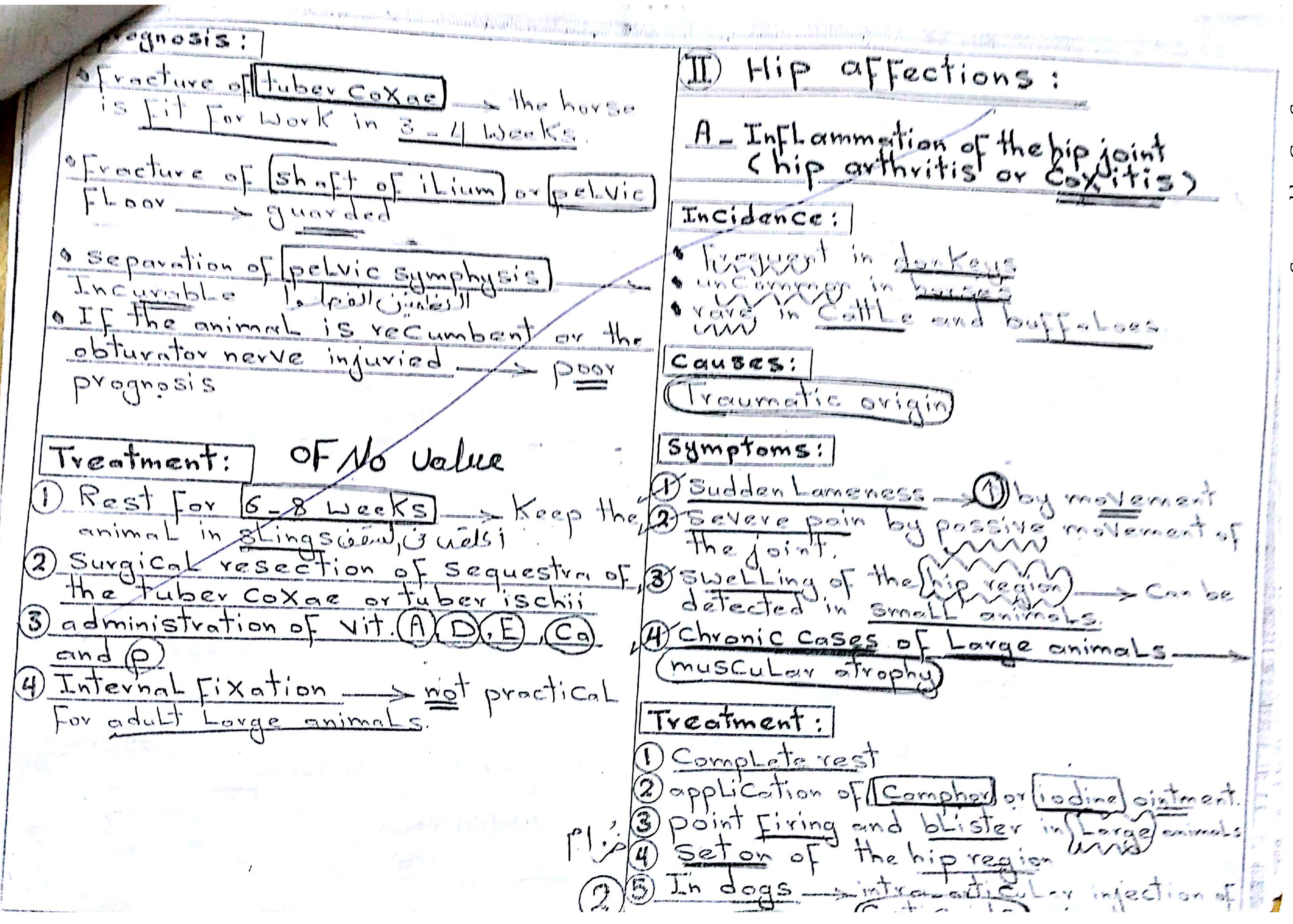


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Prognosis:

- Fracture of tuber coxae → the horse is fit for work in 3–4 weeks.
- Fracture of shaft of ilium or pelvic floor → guarded
- Separation of pelvic symphysis → Incurable [illegible]
- If the animal is recumbent or the obturator nerve injuried → poor prognosis

Treatment: OF No Value

1. Rest for 6–8 weeks → Keep the animal in slings [illegible]
2. Surgical resection of sequestra of the tuber coxae or tuber ischii
3. administration of vit. A, D, E, Ca and P
4. Internal fixation → not practical for adult large animals.

II Hip affections:

A– Inflammation of the hip joint (hip arthritis or coxitis)

Incidence:

- frequent in donkeys
- uncommon in horses
- rare in cattle and buffaloes

Causes:

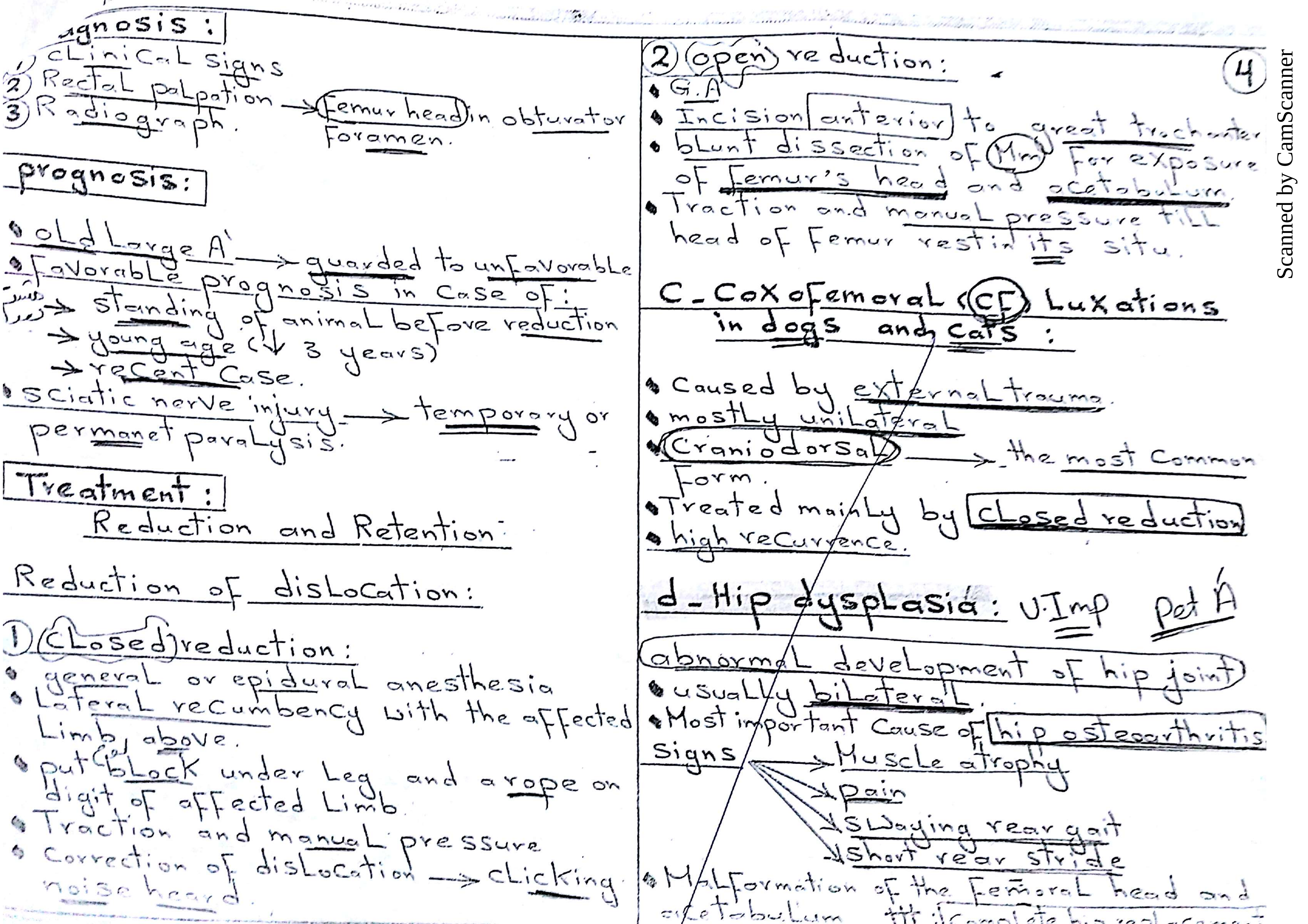
Traumatic origin

Symptoms:

1. Sudden lameness → ↑ by movement
2. Severe pain by passive movement of the joint.
3. swelling of the hip region → can be detected in small animals.
4. Chronic cases of large animals → muscular atrophy

Treatment:

1. Complete rest
2. application of camphor or iodine ointment.
3. point firing and blister in large animals
4. Seton of the hip region
5. In dogs → intra-articular injection of ...



...gnosis:

1) Clinical signs
2) Rectal palpation
3) Radiograph → Femur head in obturator foramen.

Prognosis:

- old large A' → guarded to unfavorable
- Favorable prognosis in case of:
  - → standing of animal before reduction
  - → young age (↓ 3 years)
  - → recent case.
- Sciatic nerve injury → temporary or permanet paralysis.

Treatment:

Reduction and Retention:

Reduction of dislocation:

1) (Closed) reduction:
- general or epidural anesthesia
- Lateral recumbency with the affected limb above.
- put (cal) block under leg and a rope on digit of affected limb.
- Traction and manual pressure
- Correction of dislocation → clicking noise heard.

2) (open) reduction:
- G.A
- Incision anterior to great trochanter
- blunt dissection of (Mm) for exposure of femur's head and acetabulum.
- Traction and manual pressure till head of femur rest in its situ.

C-Coxofemoral (CF) Luxations in dogs and cats:

- Caused by external trauma.
- mostly unilateral
- (Craniodorsal) → the most common form.
- Treated mainly by closed reduction
- high recurrence.

d-Hip dysplasia: V.Imp Pet A'

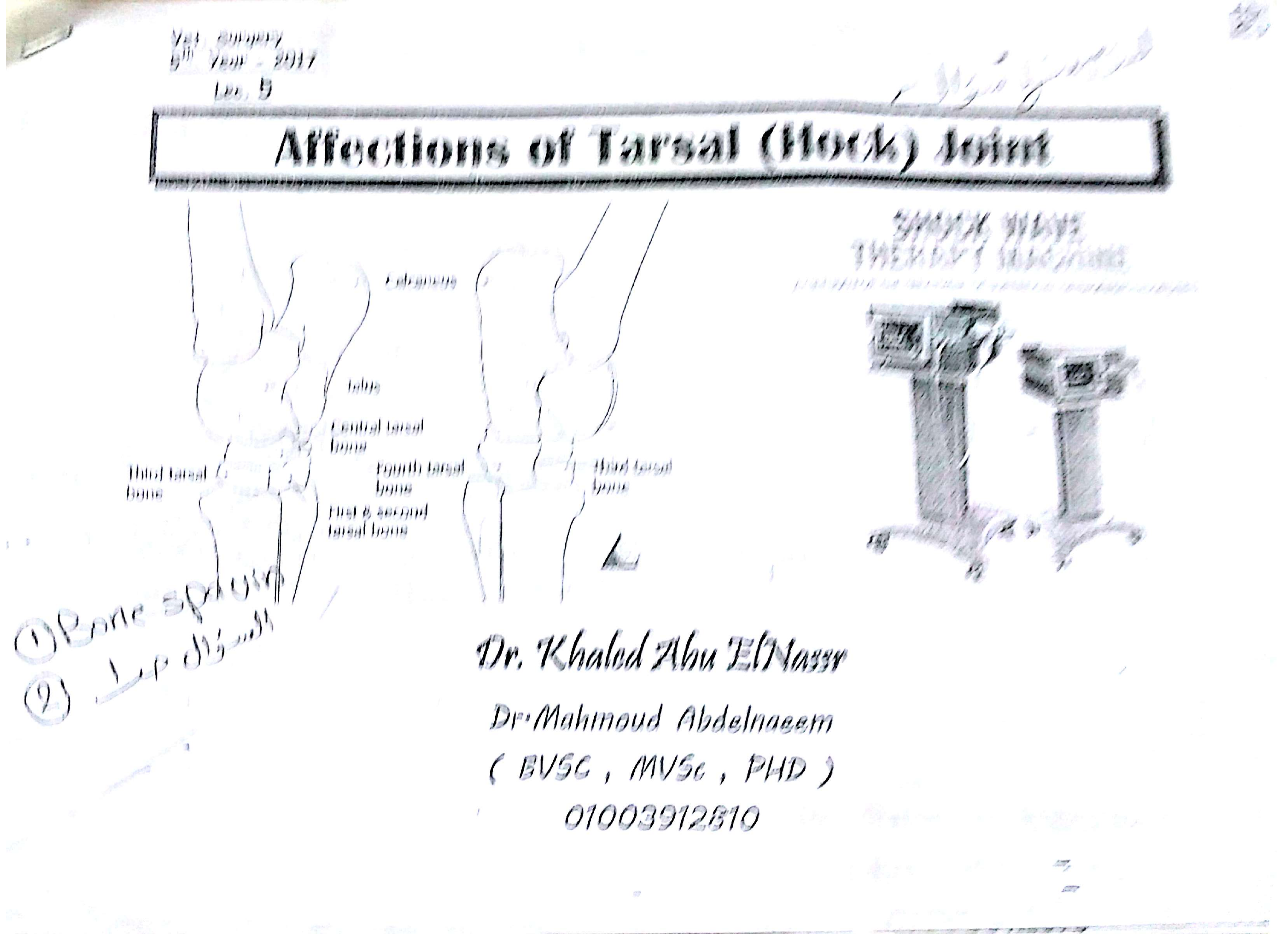
abnormal development of hip joint
- usually bilateral.
- Most important cause of hip osteoarthritis

Signs →
- Muscle atrophy
- pain
- Swaying rear gait
- Short rear stride

- Malformation of the femoral head and acetabulum ... (complete hip replacement)

Vet. Surgery
5th Year - 2017
Lec. 5

Affections of Tarsal (Hock) Joint



1) Bone spavin

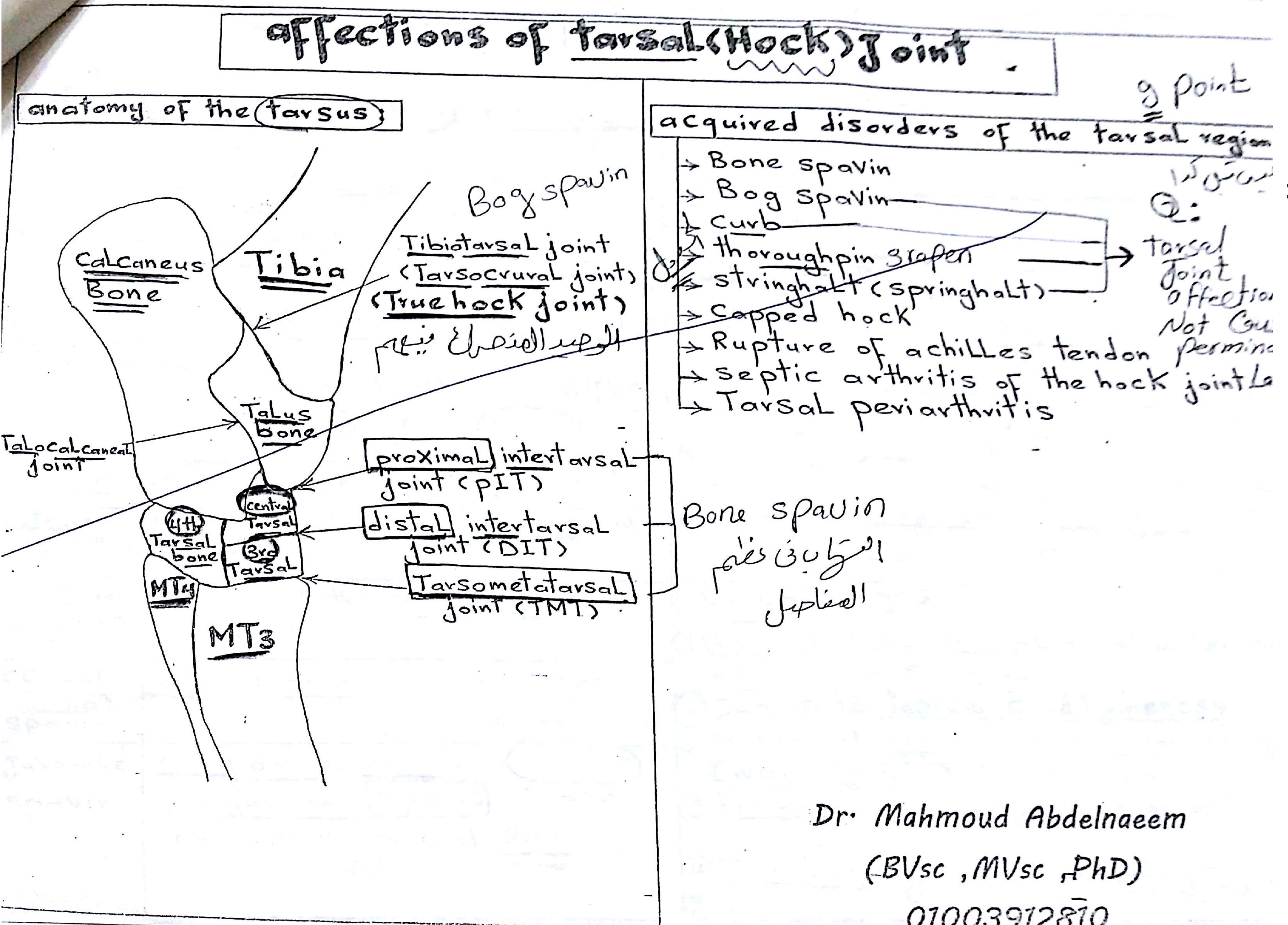
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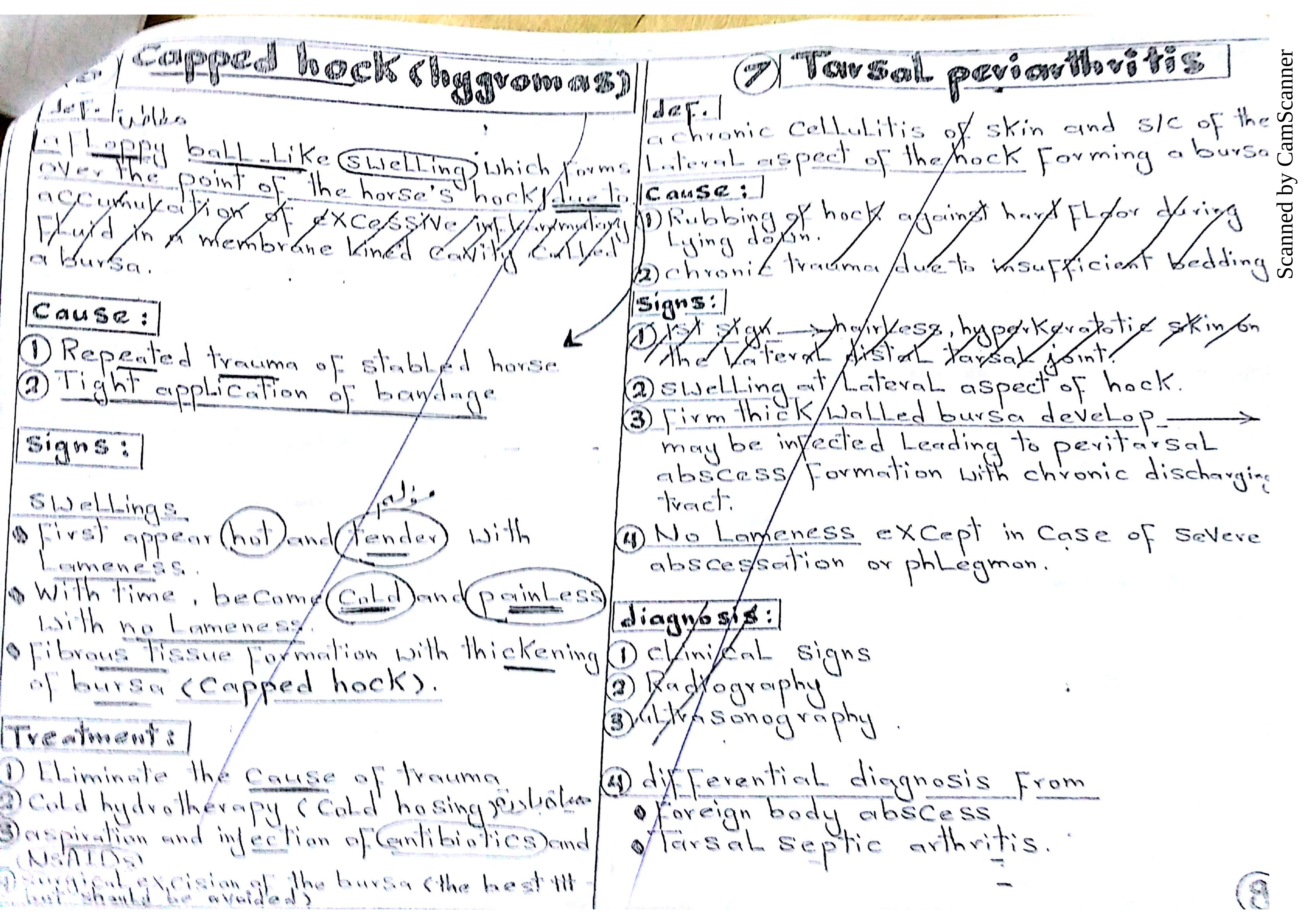
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Scanned by CamScanner



affections of tarsal (Hock) joint
anatomy of the tarsus:
Calcaneus Bone
Tibia
Talus bone
Talocalcaneal joint
central tarsal
4th Tarsal bone
3rd Tarsal
MT4
MT3
Bog spavin
Tibiotarsal joint (Tarsocrural joint) (True hock joint)
الوحيد المتحرك فيهم
proximal intertarsal joint (PIT)
distal intertarsal joint (DIT)
Tarsometatarsal joint (TMT)
Bone spavin
التهاب غضروف المفاصل
9 point
acquired disorders of the tarsal region
→ Bone spavin
→ Bog spavin
→ Curb
→ thoroughpin
→ stringhalt (springhalt)
→ Capped hock
→ Rupture of achilles tendon
→ septic arthritis of the hock joint
→ Tarsal periarthritis
Q:
→ tarsal joint affection
Not Cu
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Capped hock (hygromas)

Def.:
a floppy ball-like (swelling) which forms over the point of the horse's hock due to accumulation of excessive inflammatory fluid in a membrane lined cavity called a bursa.

Cause:
1. Repeated trauma of stabled horse
2. Tight application of bandage

Signs:

Swellings
- First appear (hot) and (tender) مؤلم with Lameness.
- With time, become (Cold) and (painless) with no Lameness.
- Fibrous tissue formation with thickening of bursa (Capped hock).

Treatment:
1. Eliminate the Cause of trauma
2. Cold hydrotherapy (Cold hosing)
3. aspiration and injection of (antibiotics) and (NSAIDs)
4. surgical excision of the bursa (the best !!! but should be avoided)

7 Tarsal periarthritis

Def.:
a chronic cellulitis of skin and s/c of the lateral aspect of the hock forming a bursa

Cause:
1. Rubbing of hock against hard floor during lying down.
2. chronic trauma due to insufficient bedding

Signs:
1. 1st sign → hairless, hyperkeratotic skin on the lateral distal tarsal joint.
2. swelling at lateral aspect of hock.
3. Firm thick walled bursa develop → may be infected leading to peritarsal abscess formation with chronic discharging tract.
4. No Lameness except in case of severe abscessation or phlegmon.

diagnosis:
1. clinical signs
2. Radiography
3. ultrasonography.
4. differential diagnosis from
   - foreign body abscess
   - Tarsal septic arthritis.

1) correction of predisposing Causes (soft bedding)

2) acute form:
antibiotics and anti-inflammatory drugs

3) abscess formation:
Lanced, cleaned and flushed daily for few days.

4) If joint is involved:

- Joint Lavage with antibiotic injection
- Systemic antibiotic and antiinflammatory.

5) Radical excision of infected bursa but not advisable.

8) Septic arthritis of the hock joint

- a Life-threatening Condition in the horse
- result of trauma and infection

treatment:

1) systemic broad spectrum antibiotics
2) Local joint Lavage and debridement

9) Rupture of achilles tendon

- The hock dropped to the ground and the horse Can not advance the Limb.

Treatment:

1) Full Limb Cast and slinging of the horse for 6-10 weeks.

2) Euthanasia in most Cases.

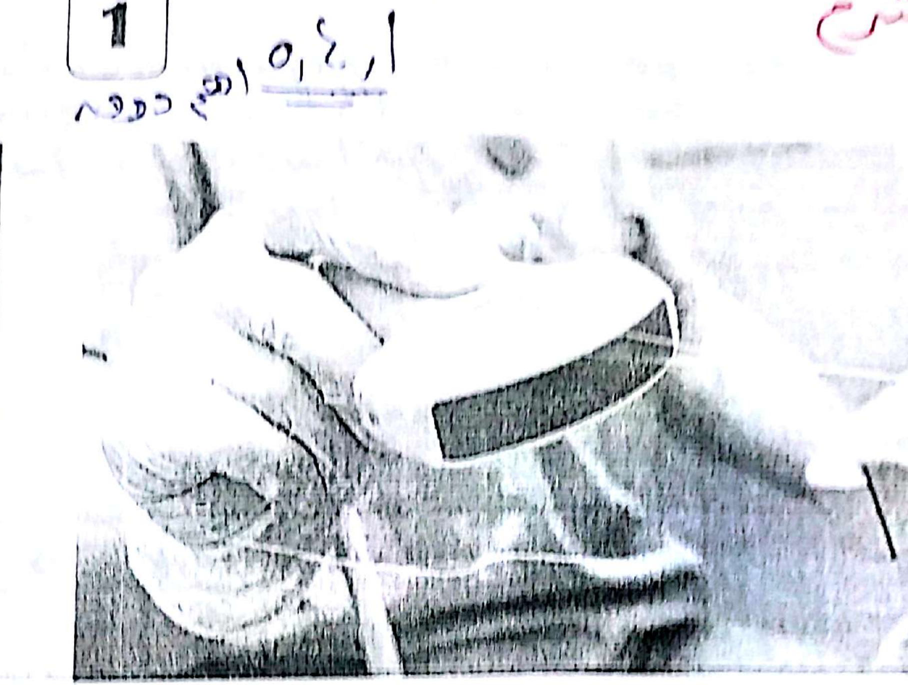
Basics of Ultrasonography

1

١، ٢، ٥ اهم حاجة

* أول مرة يتشرح





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Ultrasound

- In diagnostic ultrasound, a pulse of ultrasound waves is directed into the body → traverses (تخترق) the tissues untill it reaches a reflecting surface from which it is reflected back to the transmittor which also acts as a receiver → the returning signal is called an echo → the returning echoes reach a computer that processes the signals and displays them on a screen as a two-dimensional (2-D) representation.

- The instrument in which the crystal is mounted is called a transducer or probe. Its body contact surface is called a footprint.

Footprint

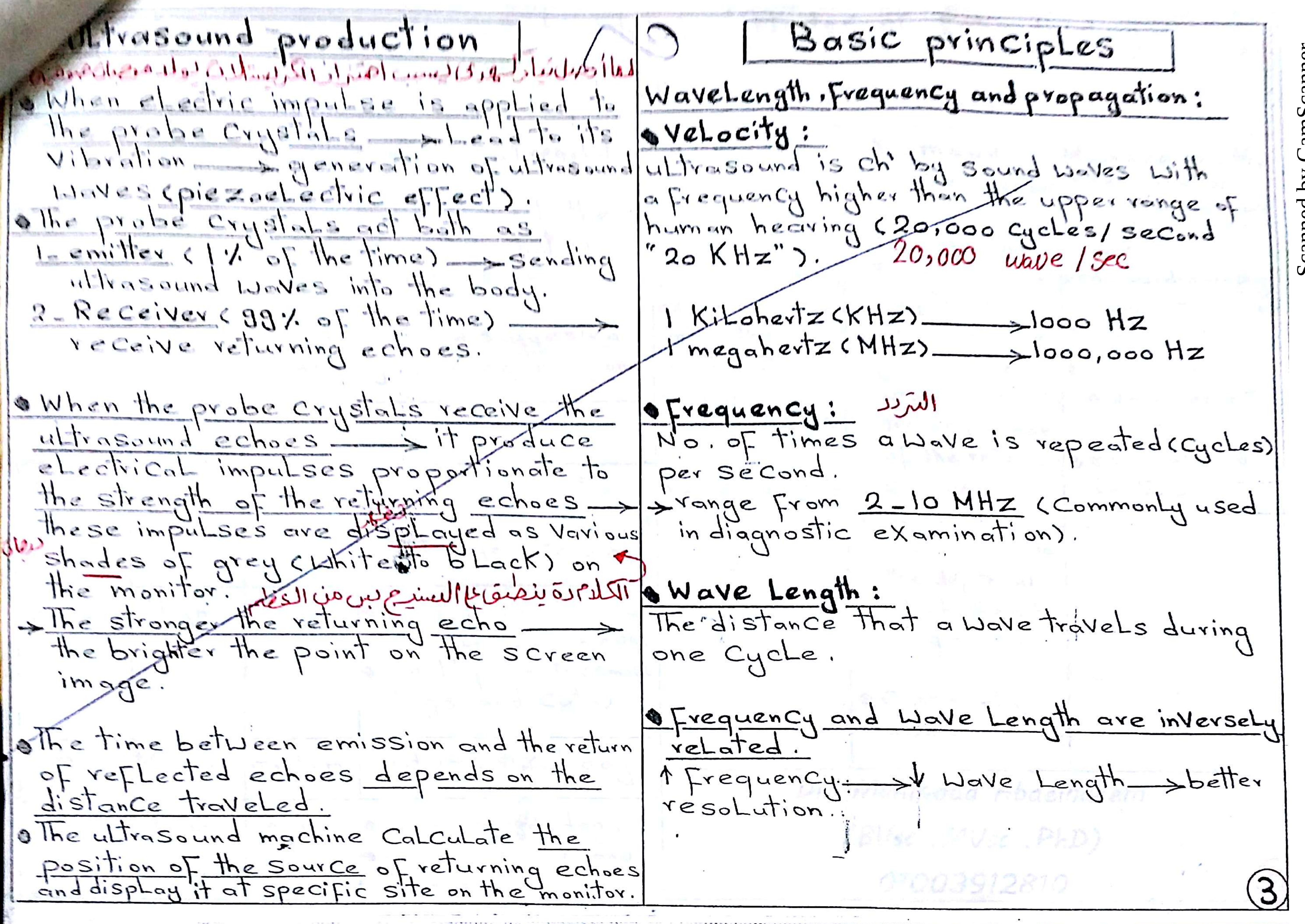
probe

- Radiographic and ultrasonographic examinations are complementary. Thoracic radiographs may indicate cardiac enlargement whereas echo-cardiography allows assessment of the various cardiac components and accurate evaluation of the cardiac disease.

بيشوف المكونات الداخلية بالضبط

Radiography Vs ultrasonography:

Radiography	ultrasonography
No judgement of internal structures	good judgement of internal structures
organ boundaries not always clear	organ boundaries always clear
poor details when fluid are present (edema, ascites). في حالة الاستسقاء تظهر سودا	good details when fluid are present (edema, ascites)
Radiation hazard	No hazard repeated as wanted
Limited time consuming	Long time consuming
good judgement of gas and bone	No judgement of gas and bone.
Summation image. صورة عامة	Sectional image صورة مفصلة
expensive	Less expensive



Ultrasound production

لما الكهربا بتمر بيحصل اهتزاز للكريستالات بتولد موجات صوتية

- When electric impulse is applied to the probe crystals → Lead to its vibration → generation of ultrasound waves (piezoelectric effect).
- The probe crystals act both as
  1- emitter (1% of the time) → sending ultrasound waves into the body.
  2- Receiver (99% of the time) → receive returning echoes.

- When the probe crystals receive the ultrasound echoes → it produce electrical impulses proportionate to the strength of the returning echoes → these impulses are displayed as various shades of grey (white to black) on the monitor.

الكلام ده بينطبق ع السيرنج بس من الكتاب

→ The stronger the returning echo → the brighter the point on the screen image.

- The time between emission and the return of reflected echoes depends on the distance traveled.
- The ultrasound machine calculate the position of the source of returning echoes and display it at specific site on the monitor.

Basic principles

Wavelength, Frequency and propagation:

Velocity:

ultrasound is ch' by sound waves with a frequency higher than the upper range of human hearing (20,000 cycles/second "20 KHz"). 20,000 wave/sec

1 Kilohertz (KHz) → 1000 Hz
1 megahertz (MHz) → 1000,000 Hz

Frequency: التردد

No. of times a wave is repeated (cycles) per second.

→ range from 2-10 MHz (Commonly used in diagnostic examination).

Wave Length:

The distance that a wave travels during one cycle.

- Frequency and Wave Length are inversely related.

↑ Frequency → ↓ Wave Length → better resolution.